THE OXFORD GEOGRAPHIES

THE ELEMENTARY GEOGRAPHY

VOL. VIII. BRITAIN OVERSEAS

By E. K. HOWARTH

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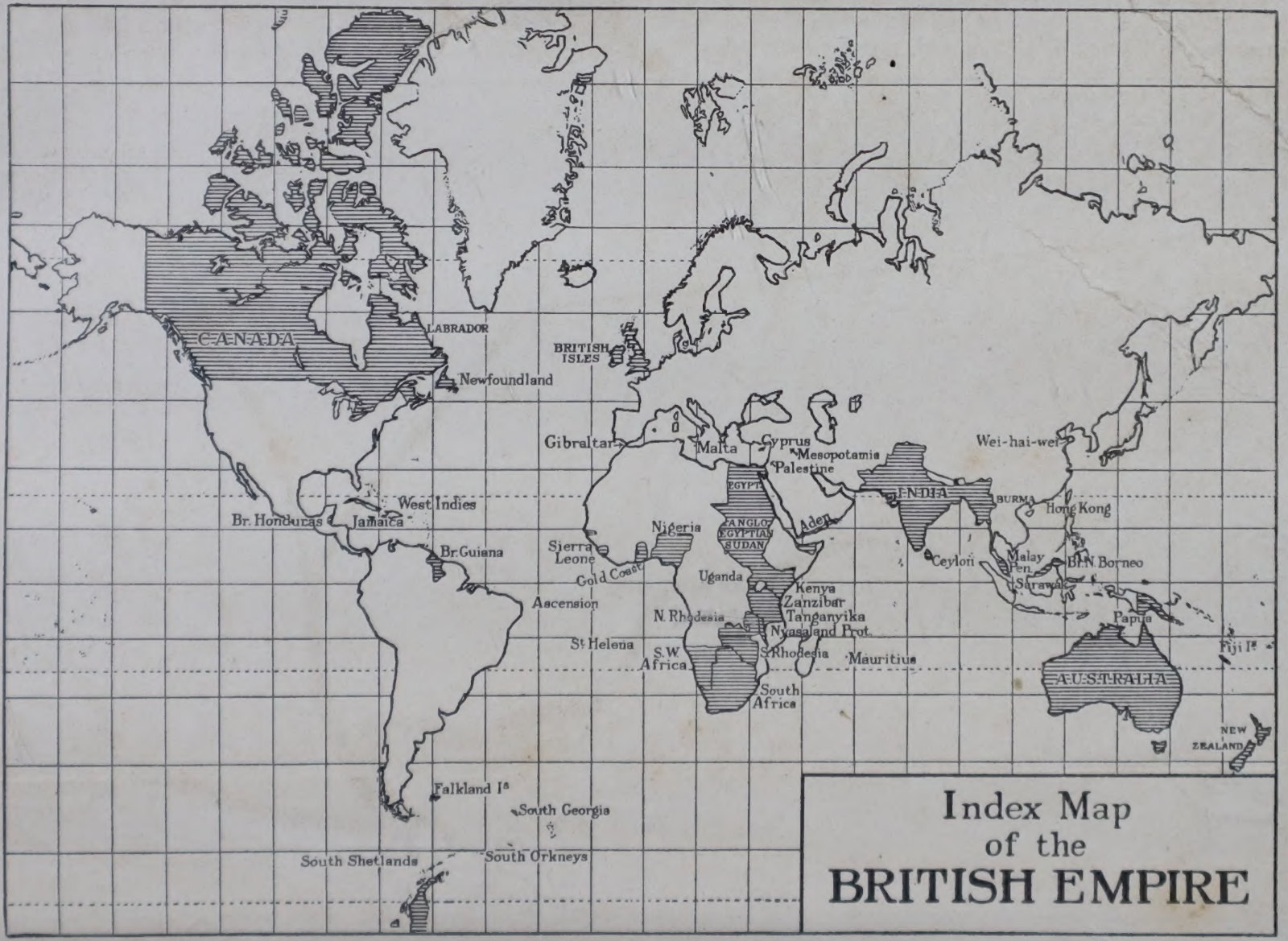
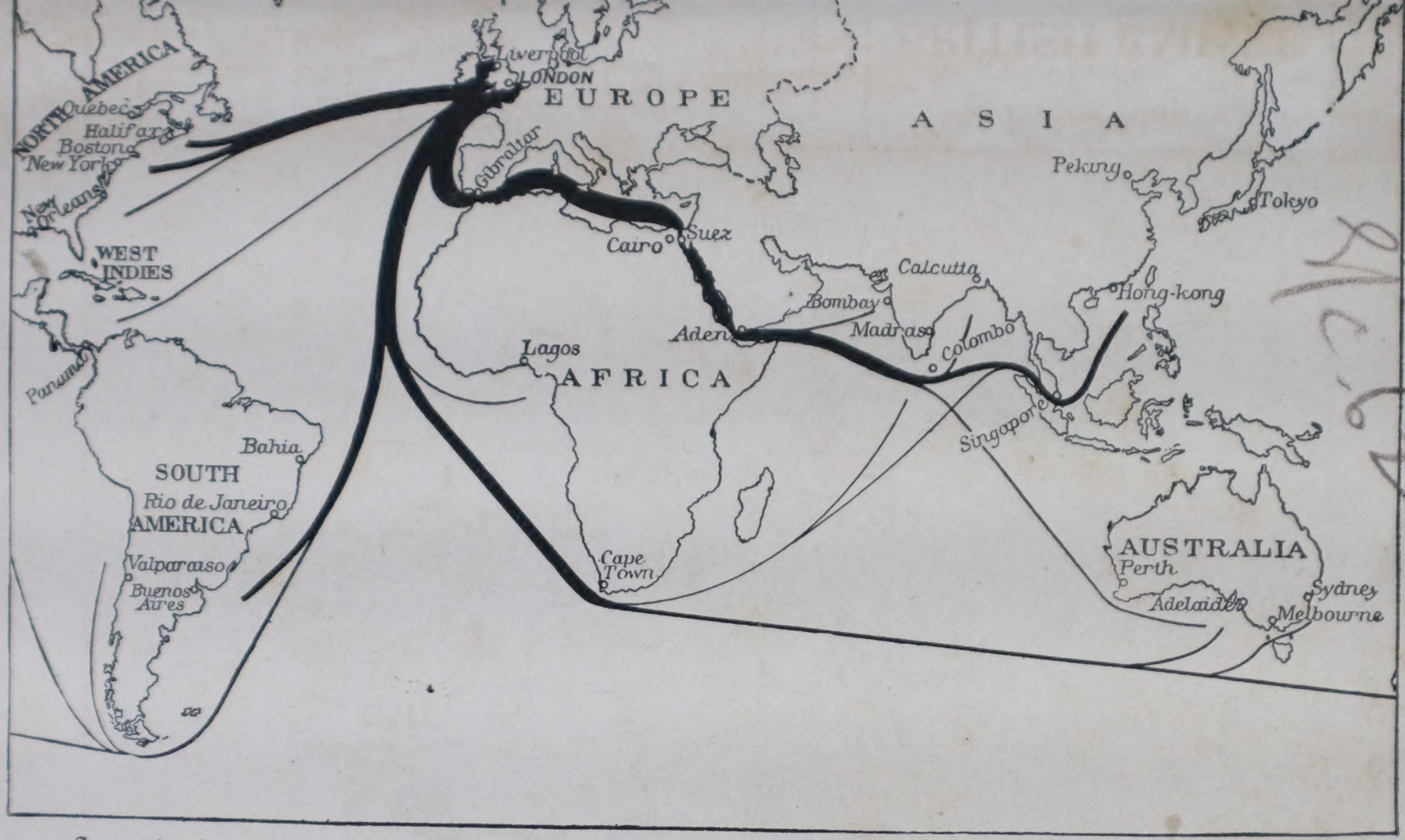


Index Map of the BRITISH EMPIRE



Sea routes from Britain to America, South Africa, India, Australia, and the Far East. The thickness of the lines shows roughly the relative importance of the routes.

THE HIMALAYAS FROM DARJILING, INDIA

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VOLUME VIII

BRITAIN OVERSEAS

BY

ELEANOR K. HOWARTH

EDITED BY

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WITH 25 ILLUSTRATIONS IN THE TEXT

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PREFACE

THIS volume has been added to the series of elementary geographies planned and written by the late Professor and Mrs. Herbertson, to meet a demand for an elementary geography of the British Empire. It has therefore been designed to be read either after Volume II in the series (*In and About Our Islands*), or with Volume VII (*The British Isles*), as with these two volumes, fitted for slightly different standards, at command, it is unnecessary to include in the present volume a third version of the geography of the home-land.

The exercises given at the end of each chapter may serve as indications, but many others can be worked out on similar lines.

CONTENTS

(*The italics indicate illustrations*)

CHAPTER I

INTRODUCTION: BRITAIN AND THE EMPIRE

1. We are to read in this book about the British Empire Overseas—that is to say, the many countries all over the world which are ruled from Great Britain by Britons. There are many reasons why Great Britain has built up her empire, and some have nothing to do with geography, but others are geographical.

2. Great Britain is an island, and not a very big one. This means that numbers of her people live near or on the coasts. Along the coasts are many fine harbours. Thus from early times many of the people of Britain have been fishermen and sailors. Many centuries ago they began to go long sea journeys, being bold and adventurous, and thus they found and took many unknown parts of the world for themselves.

3. One of the reasons which has made Britons so keen to explore and possess other parts of the world beyond their own land has always been that in our little island it is not possible to produce everything that its people need. At first, rich people grew to like luxuries which the sailors brought back from tropical lands, such as precious stones from Ceylon; spices from the East Indian islands; tobacco from America; fruit trees and vegetables like potatoes which were brought over to be planted and grown in England, and many other things. As England became more and more thickly inhabited, not even enough necessary things like wheat and wool could be produced at home to satisfy the people's needs.

and also every one began to need things like tea and coffee and rubber (which will only grow in tropical countries) as soon as they found out how useful they were. So now we depend on our overseas dominions for great quantities of produce: such as wheat from Canada, wool and meat from Australia and New Zealand, tea and cotton from tropical India, rubber from Africa, gold and diamonds from South Africa, and very many other things.

4. The British Empire covers a quarter of the land surface of the globe, and it is about equally divided between the northern and the southern hemispheres, so that while it is winter in one half of the empire it is summer in the other. This is important because the summer harvests of one part of the empire are able to supply the winter needs of the other part.

5. Great Britain rules over countries which are many times as large as itself. Canada is about 40 times, and Australia about 33 times as big as Great Britain. Some countries, like Canada and Australia, are temperate lands, in which white men can work hard, and before white men came they were only very thinly peopled: so in Canada, with its $7\frac{1}{2}$ million people, and in Australia, with its 5 millions, almost all the people are white, and do the work. In other great parts of the empire, however, it is too hot for Englishmen to work hard, and so in these lands a small number of white men direct the work of a very great number of natives, who are accustomed to the climate. Such countries are India (where there are nearly 2000 natives to each white man) and British possessions in tropical Africa. There are also countries like South Africa, where white men are able to labour, but where there have always been large numbers of coloured natives, who do all the harder work.

6. There are about 53 million white people in the whole empire, and most of them have come from the mother country. Some have been sent out as rulers and officials of all kinds to look after the lands overseas, but most have been people who were poor or had not much chance in England, so that they have gone abroad to seek their fortunes. Whenever news is brought that gold has been found, great numbers of men rush to the place, wherever it may be, in the hope of making much money by mining the gold. Countries where sheep flourish, or where wheat or fruit do well, are filled up more gradually with men who want to be farmers.

7. But the great geographical fact in the making of the empire, as we saw in § 3, is the need we have for the products of other lands. In return we send many things, of which you may read more in the volumes on the British Isles. All this trading is carried on by ships which move by definite trade routes between the dominions and Great Britain. We have mentioned the great dominions which have been opened up for settlement and for trade by Great Britain, and to which we have brought good government; besides these we have many islands and other small tracts of land which have been added to the empire at different times: these are useful to our ships, which may stop to take in provisions and coal on their long journeys, and they serve as safe places from which the British may carry on their trade, both overseas and with neighbouring lands. We should look for examples throughout this book.

Exercises

1. Note the geographical causes which have assisted the making of the empire.

2. Return to the above exercise while reading the following chapters, and collect examples to illustrate it.

CHAPTER II

THE EMPIRE IN AMERICA: (*a*) NEWFOUNDLAND AND CANADA

8. Newfoundland, a large triangular island off the mouth of the St. Lawrence in North America, is a little smaller than England. It was our first colony, lying as it does nearest to our western shores across the Atlantic Ocean. It is separated by Cabot Strait (60 miles wide) from Cape Breton Island, and by the Strait of Belle Isle (10 to 15 miles wide) from Labrador, which belongs to it. The coast has high cliffs, deep inlets, and fine harbours, and the island is almost cut in two by Trinity and Placentia Bays. All these inlets, and the most important rivers, which are comparatively small and shallow, run from NE. to SW. Newfoundland is largely rocky and hilly, and much of it is covered with forest, so that not much agriculture is carried on. The chief employment is cod-fishing, and the principal industries are those like rope-making and ship-building, which assist fishing. Cod are caught on the shallow submarine 'banks' almost all round the coast and off the adjoining coasts of Labrador, and where they are scarce, as at Hare Bay in the north, there are hardly any people. Up to the middle of the 19th century, herring were only looked on as food for cod; but now they are pickled or salted for export, and lobsters and whales are also caught. Thousands of men are engaged in sealing on the northern ice-floes in March and April, and many fishermen visit the Labrador coast in the summer. This is the coast of the mainland north of Newfoundland, to which it belongs. Mining for iron and copper is carried on along the coasts of Newfoundland, but the people do not care to live inland: Grand

Fig. 1. Star River Falls, Newfoundland

Falls, built by a company which manufactures pulp and paper from timber, is the only inland town. The pulp and paper trade is becoming very important to Newfoundland, which exports almost all that it produces, and so has to import all the necessaries of life. St. John's, facing the Atlantic, is the chief port and capital of Newfoundland.

9. Canada consists of the northern part of North America, with the exception of the coast of Labrador on the east, which belongs to Newfoundland, and Alaska to the north-west, which belongs to the United States. The Dominion of Canada contains over $3\frac{1}{2}$ million square miles, so it is the biggest of all the British dominions.

10. Boundaries. The boundary between Canada and the United States is mostly a natural boundary from the Atlantic to Winnipeg, half-way across the continent—that is to say, it runs mostly along the St. John and St. Lawrence rivers and then through the Great Lakes. From Winnipeg to the Pacific it is an artificial boundary—that is to say, it does not follow any natural features such as a river or a range of mountains, but is an imaginary line drawn along the 49th parallel of latitude. The boundaries between the provinces are also largely artificial.

11. Physical Divisions. It is easy to see from a map that we may divide Canada into three main parts: (1) a plateau of rolling hills in the east, forested, dotted with lakes, and cut up by valleys; (2) central plains or prairies; (3) a belt of high mountains in the west.

12. Political Divisions. The Dominion of Canada contains eleven provinces or territories, which may be grouped in four divisions. The first division consists of the Maritime Provinces (that is to say, Nova Scotia, New Brunswick, and Prince Edward Island, all on the

Atlantic coast); Quebec, which includes all the country from south of the St. Lawrence River to Hudson Bay, and Ontario. Ontario stretches from the Great Lakes to Hudson Bay. In this part of Canada lumbering, fishing, and mining are the most important occupations, though much of the land in the south of Quebec and Ontario is cultivated.

The second division contains the central provinces of Manitoba, Saskatchewan, and Alberta, the prairie provinces, where wheat-growing is the chief occupation.

The third division consists of British Columbia, the mountain country in the west, where again men live mostly by tree felling, mining, and fishing.

The fourth division contains all the vast stretches of country in the cold north, where there is no settled population, but only wandering people who live on the fish and game they can catch to eat, and by selling the furs of animals to traders. This northern part of Canada is not divided into provinces with governments of their own, but into 'territories'—North-West Territories and Yukon Territory.

13. The Laurentian Plateau. Most of the east of Canada is composed of very old rocks, and is called the Laurentian Plateau. This plateau stretches from north of the St. Lawrence River all the way to the Arctic regions in the north. Once it consisted of great ranges of mountains, but it is so old that all the mountains have been worn down by the work of rivers and glaciers till now there is nothing left of them but low rounded hills, all of much the same height and mostly under 1,000 ft. Although this plateau covers so much of eastern Canada, most of it is really the least important part to us. But many more people, and richer people, live along the southern edge of the plateau than on the

plateau itself. This is partly because the climate is very cold in all the northern part of Canada, and makes it difficult for men to live and grow food there, and partly because the plateau is rocky and not good for cultivation.

14. The Ice Age and its Effects. Long after the mountains were formed, the whole of northern Canada was covered with a great sheet of ice, probably, more than a mile thick, just as Greenland is to-day, and glaciers spread down the valleys. Glaciers wear away the surface of the country, and carry waste rock with them. When they come to warmer country, they melt and leave hills of this ground-up rock behind them: this is called morainic drift, and when it is ground up quite small it is called boulder clay, and makes splendid land for growing crops. The glaciers also scratch the rocks over which they pass, and often carry along huge boulders with them. These three signs of the presence of an ice-sheet and glaciers in past ages—boulder clay, scratched rocks, and boulders of a different kind of rock to that found in the places where they now lie—are seen nearly all over Canada. The Laurentian Plateau has been scoured by the ice, and all the loose earth carried away, so that over many thousands of square miles the rocks have been swept bare and thus little land good for cultivation is found.

At the southern edges of the big ice-sheet, where it was warmer, quantities of boulder clay were deposited, and sheets of silt and sand were also laid down by the glacial lakes, many of which have since dried up. Thus much of the most fertile land in Canada was also caused by glaciers. Many farmers live on these lands and grow wheat and fruit and other crops, but many miles are still covered with forest. We see that the glaciers in

Canada, which did their work thousands of years ago, gave us drift-covered plains for the farmers and fruit-growers, an easy way for the railways to run, great stretches of navigable water over lakes and rivers, and many waterfalls to provide power for factories.

15. Lakes and Rivers. Many lakes, scattered all over the centre of Canada, were caused by the glaciers. They have all sorts of irregular shapes, unlike the valley lakes in Scotland or Switzerland: this is because they were caused by the stopping up of depressions and valleys in the rocks of the plateau by heaps of drift. Then when the country became slowly warmer, and the ice melted, these depressions were filled with water. Many of these lakes are connected by rivers with falls and rapids. In many places, again, especially in the gently sloping land round Hudson and James Bays, there are hundreds of miles of muskeg or peat bog. Canoes can be navigated in almost any direction: a canoe can be launched on the northern shore of Lake Superior and taken all the way, say, to Hudson Bay in the north or to Winnipeg in the west, with few portages of more than a mile or two. This is how, in summer, people still travel about the country which lies north of the railways.

16. The Great Lakes. The Great Lakes and the St. Lawrence River form a series of very important waterways in eastern Canada. The St. Lawrence River, which drains the lakes to the ocean, carries down more water than any other river except the Amazon in South America. Where it rises it is called the St. Louis, and after a short course it flows into Lake Superior, which is larger than Scotland (over 30,000 square miles); it lies over 600 feet above the sea, and in places it is 1,000 feet deep. Over one-third of its waters belong

to Canada, and the rest to the United States. The river which leaves it is called the St. Mary, and it falls 20 feet in a mile or so, forming the rapids called Sault Sainte Marie, or St. Mary's Leap. Several canals have been cut to avoid these rapids, through which more vessels pass in a year than go through the Suez Canal, which shows how useful these waterways are to Canada.

After a course of 50 miles, the St. Mary enters the second of the Great Lakes, Lake Huron, which is about twice the size of Holland (24,000 square miles), and about 280 miles long. It is 581 feet above the sea, and only 8 feet above the level of Lake Erie, the next lake, so that there are no falls or rapids to hinder navigation between Lake Huron and Lake Erie. Lake Michigan, another Great Lake, is joined to Lake Huron at its northern end: it belongs entirely to the United States. The river which leaves Lake Huron is called the St. Clair: after a course of 42 miles it widens out to St. Clair Lake, and from there to Lake Erie it is called the Detroit River. The Detroit is navigable for the largest ships, and carries a great number of trading vessels eastwards.

Lake Erie, which lies 573 feet above the sea and is not quite so large as Belgium, is the shallowest of all the lakes, and therefore freezes most easily: it is closed to ships by ice for many months in the year. Like all the lakes, it is often swept by violent storms, and shipwrecks are common. Lake Erie is connected with New York by the Erie Canal, and with the Ohio and the Mississippi by the Ohio Canal: the Welland Canal has also been built to avoid Niagara Falls.

17. Niagara Falls. Lake Erie lies about 330 feet above Lake Ontario, but the Niagara River, which connects the two lakes, is only 35 miles long. Half this

big drop is made at the Niagara Falls, which are 167 feet high on the American side and 158 feet high on the Canadian side. The American falls are higher, narrower, and carry much less water than the Canadian falls. The river, which is nearly a mile wide, is divided into two parts just above the falls by Goat Island. The water flings itself with a thunderous noise and enormous clouds of spray into a narrow gorge, shut in by high rock walls. Down it the river rushes in a boiling torrent. The falls are the greatest source of water-power in North America, and provide electricity for factories and railways and for lighting the neighbouring towns. The current is carried to places as much as 100 miles away, and it lights the city of Toronto. The rush of water over the falls wears the rocks away comparatively quickly, so that the falls have moved upstream towards Lake Erie some six miles in the last few thousand years, and the gorge has become correspondingly longer. Huge masses of rock are constantly falling from the ledge of the falls into the rapids below. Probably the falls were first formed when the courses of many rivers were dammed and changed by the moraines left after the glaciers of the Ice Age had disappeared. Before the Ice Age the Great Lakes probably drained west to the Mississippi.

Niagara River flows to Lake Ontario, the smallest of the Great Lakes, which is about the size of Wales (7,250 square miles). It is nearly 195 miles long, and lies 247 feet above the sea.

18. St. Lawrence River. If you look at a map you will see that there is very little land under 600 feet high in eastern Canada except in Nova Scotia and New Brunswick, and the narrow strip along the St. Lawrence and round the Great Lakes. The St. Lawrence valley

is shut in on the north by the Laurentian Plateau, and on the south by the northern end of the Appalachian highlands. Therefore all the rivers which flow to the St. Lawrence have a steep descent to reach the main stream, and form falls and rapids, and it is these falls and rapids which provide the abundant water-power of eastern Canada. The St. Lawrence itself is also broken by falls and rapids; of these Niagara Falls are the chief, and the Lachine Rapids, 9 miles above Montreal, are the lowest down the river, which drops 247 feet from Lake Ontario to sea-level. Canals have been cut to avoid these rapids, and by means of these canals river steamers can go through the Great Lakes right to the upper end of Lake Superior. Ocean-going steamers can come as far as Montreal, a thousand miles inland. The tide comes up to Three Rivers, half-way between Quebec and Montreal. Large vessels can also go from Montreal to New York by means of a ship canal to Lake Champlain, and then by more canals to the Hudson River, which leads to New York. The St. John, a tributary of the St. Lawrence, which comes in from the south opposite Montreal, is also an important route between the two places. The St. John and the Ottawa, which comes in from the north above Montreal, are the two most important tributaries of the St. Lawrence, and are great lumber rivers (see § 26).

19. The Prairies. Between the eastern plateau and the western mountains lie the prairies or grassy plains, which rise by low terraces to the hills, and vary from 700 to about 3,000 feet above the sea. They stretch for 800 miles from Winnipeg westward to the Rocky Mountains: farther north they are narrower, and then they spread out again along the Arctic Ocean. When they were first discovered by white men these plains were the

home of millions of bison or buffalo, but now more grass land is ploughed up for wheat every year, and the bison have disappeared.

The prairies are divided into three parts. The first, that of Manitoba, in the Red River valley, is the lowest; and since the soil is very fertile and there is more rain than falls farther west, it is here that most of the finest wheat is grown. Manitoba is almost all fit for farming, though the south is the most fertile part. The second division, which includes most of Saskatchewan and part of western Manitoba, is about 1,600 feet above the sea, and 800 feet higher than the first division. The north is forested and thinly peopled, but the south is farming country, where wheat is the chief crop (see § 39 and Fig. 3). The third division of the prairies, covering southern Alberta and the west of Saskatchewan, lies some 3,000 feet above the sea, and is separated from the second division by low heights, named long ago by the French the Missouri Coteau. These hills are the watershed between the rivers flowing to Hudson Bay and those flowing to the Mississippi. All this part of the plains is drier than the country on either side, and years ago it was only used for ranching—that is, pasturing cattle and horses. But settlers have been constantly pressing west, and a great deal of the land is now watered by canals. Here crops of hay and vegetables are grown, and even where the country is not irrigated it has been found that grasses that root deep down in the soil, like alfalfa, will thrive. The north of Alberta and the north-west of Saskatchewan lie outside the dry area, and though they are not so suitable for wheat as south Manitoba and east Saskatchewan they are very suitable for oats and other crops. Of late years wheat has also been grown; it is mostly sown in autumn, and is sent

west across the Pacific to China and Japan, where more wheat and less rice is now eaten. Ranching is now only carried on in the foot-hills and lower valleys of the mountains, and settlement for purposes of cultivation has been pushed far and wide, even into isolated parts like the Peace River valley, where large stretches of land are useless.

Fig. 2. Lake Louise in the Rocky Mountains

20. The Western Mountains. The wide belt of mountains in the west is more than 600 miles across in the south. The plains pass gradually into the foot-hills, a belt of jumbled hills up to 20 or 30 miles wide, usually crested with spruce or pine forest; the prairies are like a light green sea, with the foot-hills breaking in darker green waves against the high bare cliffs of the Rocky

Mountains. These mountains deserve their name, for they form almost a wall of rock 3,000 or 4,000 feet high above the plain, and broken only by a few gaps, like Bow valley, where a river escapes from the mountains beyond. The name of Rocky Mountains is often applied to the whole belt of mountains which stretches from the United States for a distance of 1,100 miles to the north-west. But there are really four distinct chains—the Rockies next the plains, then the Selkirks and the Gold Ranges, then the Coast Ranges, and lastly a fringe of islands which are the tops of a range of mountains, submerged by the sea, off the coast of British Columbia. Though these mountains are not very high (the highest point being about 13,000 feet) they are very impressive and beautiful: the sharp peaks are covered with snow and divided by deep valleys, which often contain glaciers. Many of these lovely valleys, with their waterfalls and lakes, have hardly ever been visited by man; some parts of the country are still unknown, and only a few of the snow-covered mountains have been climbed.

21. Northern Canada. The north of Canada is a little explored, thinly peopled, cold land, mostly consisting of low slopes, interspersed with many morainic lakes, and broken into two parts by Hudson Bay.

To the west is Yukon Territory, which is much higher and more mountainous than north-east Canada, and the highest peaks in Canada (over 18,000 feet) are in the St. Elias range in its south-east corner. The Yukon River rises only 18 miles from the sea at Skagway in the south of the Yukon Territory, and runs 2,000 miles before reaching Bering Sea, through a valley which is so broad and flat that stern-wheel steamers can navigate 1,800 miles out of the 2,000. The river passes through the Klondike region (§ 30).

22. Coasts. All the coasts of Canada are much indented, and this provides the country with splendid harbours (§ 47). The Atlantic coast has been cut up into peninsulas and islands. There is first the great peninsula of Nova Scotia, with the Bay of Fundy between it and the mainland, and Prince Edward Island and Cape Breton Island to the north of it. Then there is the wide estuary of the St. Lawrence River, up which the Atlantic tides flow for several hundred miles. North of it is the indented Labrador coast (§ 8), and then Hudson Strait, leading to Hudson Bay. The Arctic coast is fringed with big islands, and the Pacific coast of British Columbia is cut by many deep fiords (inlets) running inland into the mountains, and bordered by islands. This coast-line is something like that of Scotland or Norway. One of the reasons why the Canadian coasts have so many inlets and harbours is that they have been very slowly sinking. As the land sank the sea covered the valleys, turning them into inlets, and leaving the higher parts as peninsulas and islands. The St. Lawrence River has a valley 1,200 feet deep running out far into the ocean bed under the sea. This gives an idea how much lower the land is now than formerly.

23. Climate. Canada is so large that the climate varies greatly in different parts, and is much colder in the north at the Arctic Ocean that at the most southerly point, which is in the same latitude as Rome. The climate is also affected by the high mountains (since the higher you rise above sea-level, the colder you find it) and by the distance from the sea. North America is much more cut up by inlets of the sea, like Hudson Bay, than Asia is, so that no part of it is so far from the sea. Therefore, although the Arctic Circle cuts Canada

just as it cuts Siberia in Asia, and Montreal is not much farther from the equator than Peking in China, we do not find such extremes of heat and cold, or such large deserts, in Canada as in north and central Asia. We know that when winds strike against a range of mountains and are forced upward, they are chilled and the water vapour they are bearing is condensed and falls as rain. The most prevalent winds, both in the British Isles and on the west coast of Canada, are the wet and stormy westerly winds, so we can understand that these west winds, blowing against the high western mountains of Canada, make the west coast very rainy. The climate here is much like that of Britain. On the other (east) side of the mountains, and on the prairies, it is much drier, because the winds have lost much of their moisture, but the winters are colder, since the east winds come over the cold Labrador seas, while those which blow over the west coast come from the warmer Pacific Ocean. Though winters are cold the summers are hot, owing to the great distance from the sea. The climate is also made hotter in summer and cooler in winter by the absence of any big barrier to stop the course of the winds between the Arctic Ocean and Mexico: the icy blizzards from the far north sweep right down through Canada in the winter, and in the summer the hot winds from the south produce 'heat waves'. The winter temperature near the western mountains in Alberta is varied by the Chinook winds. These are warm winds which blow downwards from the mountains when storms are blowing on the Pacific side. Thus in Alberta the winters are often much warmer than in the other prairie provinces, and the ground is kept clear of snow, though over most of Canada a thick blanket of snow protects the land all the winter. Most

of the rain in the prairie provinces falls between May and August, and this is important because it provides moisture for the growing crops (see § 19). Farther east, in Ontario, where you would expect great extremes of heat and cold, because it is so far from the sea, the Great Lakes, which never freeze over, temper the climate. In Quebec and the Maritime Provinces generally the climate is affected by the nearness to the ocean, so that more rain falls in the east of Canada than on the prairies, though it is not as wet as on the west coast, since the mountains are not so high. The winter is milder, and the summer warm, but not so dry as on the prairies.

24. Vegetation. The southern and most important part of Canada has great forests in the east and in the west, and (§ 19) drier and grassy plains in the centre. Trees need a quantity of water deep down in the soil, and this they find in the damper climate of the mountains. There is also a broad belt of forest covering much of northern Canada. Here, where the winters are so cold, the water does not evaporate so quickly as farther south: the thick blanket of snow protects the trees, and when it melts in the spring supplies them with moisture for the summer. Thus forest trees are able to grow quite a long way north. They are mostly cone-bearing trees, such as pine and fir, but there are also trees such as oak and maple in south Canada, and many of them turn gorgeous colours in the autumn. Out of every 100 square miles of Canada, 22 are covered with forest. In British Columbia the trees grow to an enormous size (see § 26). Farther north the trees become smaller and fewer, and at last they disappear and give way in the Arctic coastal plain to the Barren Grounds, a desolate waste, which is frozen to an unknown depth, so that even in summer only a few inches of the surface soil are

thawed. It is protected by snow in winter, and is always boggy in summer, and on it a layer of dwarf vegetation manages to exist. The prairies are green and bright with flowers in the spring, but later on they are parched brown by the sun. The absence of trees is due mostly to the lack of water, but also to the burning of the forests by the Indians in the past.

25. Agriculture. The chief agricultural regions of Canada are: (1) the Maritime Provinces, and along the banks of the St. Lawrence and its tributaries. Here fruit and vegetables, wheat and barley, are grown, and cattle and horses are kept.

(2) The Lake Peninsula between Lakes Ontario, Erie, and Huron, which has a rich soil and a beautiful warm summer climate, so that quantities of peaches, grapes, apricots, and other choice fruits are grown.

(3) The prairie provinces, where both the climate and the soil favour wheat cultivation, except in the driest and coldest parts. The summers are hot and dry and the winters very cold: the wheat is sown in the spring, when the ground is soaked with the spring thaws, and the long, dry summer makes harvesting easy. The chief danger to the crops is early frosts.

(4) The Arrow Lakes region, near Vancouver, and in the Okanagan valley, in British Columbia, where fruit farming is carried on, mostly by British settlers.

26. Lumbering. In south and west Ontario the forest has been largely cleared, though the stumps may still be seen in many of the fields, and what is left has all been surveyed. But the area covered with forest in Quebec and the Maritime Provinces is still so vast that no proper calculation has ever been made either of its size or of how much it is worth. Four-fifths of the timber cut in Canada comes from here. The common

trees of the north—pine, spruce, fir, larch—are used for making wood-pulp and paper, and the many swift streams provide power to work the machinery. Some forest trees of British Columbia grow to an enormous size—200 or 300 feet high - particularly the most important tree, the Douglas fir, because of the mild, damp climate. They also grow closer together than in the east. The logs are so big that they are usually hauled by steam-engines to the numerous saw-mills, the chief of which are at Vancouver. The timber is sent mostly to the prairie provinces, where the demand for wood for all sorts of purposes is growing, and by sea to the United States, South America, Australia, and Japan. The great fires, which are caused every year by lightning, by sparks from engines, and by carelessness of hunters and lumbermen, cause tremendous damage. It is difficult to prevent this great national loss, partly because the forests are so enormous, and the population in them and on the edge of them so scanty.

In the winter, when the ground is hard with frost, the lumbermen begin their work. The trees are cut down and sawn into logs, which are dragged by horses, the big ones chained together, and the little ones on sledges, over the frozen trails to the nearest river. The men live in log-huts in the forest till the spring. When the thaw comes, the logs are marked with their owner's name and thrust into the rapid stream. The men follow behind the great mass of logs, which cover the river for a mile or so, keeping them moving and preventing any from stranding on shore. When the current slows down and the logs reach a lake, they are either made into a raft or caught and confined by a boom—that is, a number of logs chained together in a long string. When the boom is full the ends are fastened together, and the

whole mass of floating logs, called a 'bag', is towed slowly down stream by steam-tugs to the saw-mills, which they reach at the end of the summer. These mills are placed where there are falls to provide water-power for the machinery, and railways or steamship lines to carry away the sawn timber.

Fig. 3. A Lumber 'bag' on the Ottawa River

27. Animals. Because of the cold, and the large tracts of barren land in the far north, there are not so many animals or so many sorts as in the more southern parts of North America. But there are innumerable water-fowl on the coasts and lakes; and in the northern forests and on the barren grounds are animals like bears, foxes, ermine, mink, beaver, sable, and martens, which have thick fur to protect them from the cold. When the French, the first settlers from Europe, came to Canada,

they found a densely forested country, full of these animals. Instead of starting at once to clear the country and grow crops, they engaged in the fur trade, and they found the native Indians marvellously clever trappers and hunters, who could steal noiselessly through the forests, and attract the animals by imitating their cries. The French copied their ways, and gradually pushed farther and farther into the forests.

Nowadays the hunt for fur-bearing animals in the forests has given place to the cutting of timber, though wild fur-bearing animals are still hunted in the north, and are bred in captivity for their skins in Nova Scotia and Prince Edward Island.

There are other animals, like the musk-ox, caribou, moose, and elk, which do not come far south; some of them are also found in the north of Europe.

28. Fish. Fish are found in enormous quantities on both coasts and in the rivers. When Cabot discovered Labrador, he said that the cod were so numerous that his ship could hardly get along through them, and he drew them up in hampers, let down from the deck. French fishermen soon came to Labrador, and others followed them. The cod is useful in many ways: its flesh is good to eat; cod-liver oil is a useful medicine; glue is made from the skin and bones, and isinglass from the tongue and swim bladder. Many whales are also borne south by the cold Labrador current, and walrus are sometimes found.

The fisheries of Canada are among the most valuable possessions of the country. Great quantities of fish are caught off the coasts of Nova Scotia, Newfoundland, New Brunswick, Prince Edward Island and Labrador, and also in the deep-sea fisheries on the Newfoundland Banks: the French still hold the islands of St. Pierre

and Miquelon near these important fishing grounds, though they have lost the rest of North America. The fishing season on the banks lasts from April till October, the fish moving slowly northwards as the season advances. The chief fish caught is cod, and then come lobsters, herring, and mackerel. Taking all the Canadian fisheries together, 40,000 boats and 90,000 people are employed. As we should expect, fishing is also important along the fiord coast of western Canada, and is largely carried on by American Indians, Chinese, and Japanese. When the fishing season is over, the Indians receive their pay, lay in stocks of winter clothing, &c., and then travel back in their boats to their villages on the northern coasts. The Japanese and Chinese often return also to their own countries. The seas swarm with fish, such as halibut and herring, but the most important fish are the different sorts of salmon, which are caught in the Fraser River in great quantities, and packed in tins, or 'canned'. Much of the tinned salmon, which is familiar to all of us, comes from British Columbia.

29. Minerals: Coal. Coal is probably the most important of all minerals, and Canada has an enormous reserve of it which is not yet worked, mostly in Alberta. Half of all the coal raised comes from Nova Scotia. The coaling stations in Nova Scotia are in the part of Canada which is most easily reached from Liverpool, and are very useful to the British navy. There are also coalfields in Vancouver.

30. Gold and other Minerals. Gold is found in many parts of Canada, but, since it is distributed very irregularly, people who search for it are frequently disappointed, and the buildings and workings of the mines have often been burnt down in great forest fires. The Klondike tableland in the Yukon Territory is the

best explored and most settled part of northern Canada, because gold, easy to reach, was discovered here in 1895, and many men from all countries rushed to make their fortunes. When the Klondike gold mines were at their best they produced enormous riches, but as the richer ground became exhausted, their value has fallen very much, and the population has diminished. Elsewhere in the north there are known to be many rich deposits of minerals, but until settlement has spread a great deal farther, or railways have been pushed across the barren country in between, they cannot be got at.

No doubt there are vast quantities of minerals also lying hidden in the western mountains; gold, silver, lead, copper, and antimony are found here in abundance, though the gold mines of British Columbia have not proved so rich as was hoped when they were first discovered. A discovery was made in 1903 of rich veins of silver and cobalt-nickel in northern Ontario, in a part which soon became famous as the Cobalt mining district. Mining towns grew up at a great rate: for example, there was not a single person living in the district of Coleman (where are the town of Cobalt and most of the mines) in 1901, and in 1911 there were 3,131. All the farmers for a considerable distance around are kept busy providing the miners with their farm produce. Many other minerals are known to exist in Canada, and will some day be of great value. Those which are most worked at present in the east are nickel, corundum (a very hard mineral used for polishing), and salt. The largest nickel mines in the world are at Sudbury in Ontario. There are also petroleum oil wells in this province.

31. Population and Settlement. The population of Canada is $7\frac{1}{2}$ millions. The eastern provinces were

FIG. 4. QUEBEC: ST. LAWRENCE RIVER

the first part to be settled by white men, and still continue the most thickly peopled parts of the dominion. Some of the people are descendants of the first colonists, who were French, and they still speak French. The most thickly peopled part of Canada, Prince Edward Island, has 43 people to each square mile of country. Nova Scotia, thickly peopled as Canadian lands go, has an average of 23 people to each square mile. These figures do not seem high when we compare them with the 670 people we have to each square mile of England, but conditions are very different in Canada. In the north-west territories there is, on an average, only one person to every hundred square miles of territory! Even in a prairie province like Alberta, which is being rapidly settled, there are still only as many people as there are square miles of land.

32. Maritime Provinces. Nova Scotia means New Scotland: this is appropriate not only because the rugged hills and smiling valleys, the temperate, wet, and foggy climate, are like those of parts of Scotland: but also because many of the early settlers were Scottish. New Brunswick resembles Nova Scotia in its physical geography, but the land lies higher. Prince Edward Island, the smallest of the provinces, consists of low rounded hills of rich red soil, like that of Devonshire: thus the people live by keeping cows, horses, and pigs, and by growing fruit and vegetables.

33. Quebec is a vast province, but only a small part of it, the valleys of the St. Lawrence and its tributaries, is cultivated and has more than a few scattered people living in it. Here the boulder clay makes fertile land for farming, and here all the towns are situated. But to the north is the great unfertile Laurentian Plateau, very thinly peopled, and only producing timber, and to

the south are the densely forested Appalachian highlands. The population of this province, eight times the size of Great Britain, is only a little over 2,000,000, and of these nearly 500,000 live in Montreal. The banks of the St. Lawrence and its tributaries were colonized by French settlers in the seventeenth century, and their farms have been subdivided till now there is a string of little villages all along the valleys of the rivers. The farmers on the banks are within reach of easy communications, and they sell a good many of their crops, but those living on the valley terraces and on the uplands still live on their own produce, make their own clothes and household implements, and are independent of shops and markets.

In the towns, particularly in Quebec, Montreal, and Three Rivers, there are people of British origin as well as French, but in the country the people are still almost entirely French, though they are now British subjects.

Many industries are arising in the valley, especially at Quebec and Montreal; these are mostly concerned with making things out of the raw materials that are produced in the country. Thus doors and windows, furniture, matches, pulp and paper, are made from timber; leather and boots and shoes from the hides of cattle; biscuits, flour, &c., from wheat and other cereals.

34. Quebec city and Montreal, the chief towns of Quebec, are both on the St. Lawrence, Montreal 180 miles farther up the river than Quebec. Quebec stands high up on the shore where the cliffs of the Laurentian Plateau come close to the river, just before the beginning of the valley lowlands. It is a picturesque place, more like an old French town than a modern Canadian one. It has a large fine harbour, which is closed when the St. Lawrence is frozen, from the middle of December

to the middle of April. It is well served with railways, and a great bridge has been built across the St. Lawrence. This bridge fell into the river just as the last girder was being put in its place, but the Canadian engineers built it again.

Montreal is placed in a splendid position, on an island where the Ottawa joins the St. Lawrence, which is the farthest point to which ocean-going steamers can ascend. It is at the central point from which communication is carried on to the east with Europe (down the St. Lawrence), to the north up the Ottawa, to the west by the Great Lakes, and to the south with New York by Lake Champlain. Railways join it to all the chief towns of North America, so raw materials can be brought to it from all parts. It has also a magnificent harbour, so that it is easy to understand why it has become the chief port and manufacturing city of Canada.

35. Ontario. Ontario is not so big as Quebec (it is about five times the size of Great Britain), but it has rather more people living in it (2,600,000). It resembles Quebec in that to the north there is a bleak, unfertile country, covered with forest, lake, and swamp, whilst the more thickly settled country is to the south, in the St. Lawrence valley, and round the Great Lakes. Ontario is the richest province of Canada, but its wealth lies more in its position as a centre of industry and trade than in the products of its soil, though its forests, its orchards, its horses and cattle, and its minerals are all important and valuable. Most of the wheat from the prairie provinces comes through the ports on the Great Lakes; and it is the rapid growth of this trade, with the development of steamer and railway traffic as well as its own natural resources, which has helped to make Ontario prosperous.

Ontario is British, not largely French like Quebec. Near the river and Great Lakes the farmers supply the towns with produce, and in general they send more to market and buy more things for themselves in Ontario than in Quebec. Many people in Ontario live in the towns, of which Ottawa and Toronto are the chief.

36. Ottawa is a much smaller town than Montreal or Toronto, but it was made the capital of the dominion to avoid jealousy between the bigger cities. It is picturesquely placed on the Ottawa River, 100 miles from Montreal. Ottawa is the centre of a great trade in timber, and there are many saw-mills. Electric power for them, for the manufacture of agricultural implements, and for other industries, is obtained from the Chaudière Falls.

37. Toronto is the second most important city in Canada in trade and industry. Montreal is in rather a better position for trade than Toronto, as Toronto has no harbour for sea-going vessels. Toronto has many industries, and is supplied with electric power from Niagara Falls.

38. The other important towns of Ontario are all, as we should expect, on the great highway of traffic which runs through the Great Lakes and along the railways carrying wheat from the west to the east. They have great iron and steel works, and other industries, as well as the grain trade, and at all the lake ports ships are built. The chief are Kingston and Hamilton, one at each end of Lake Ontario, and Fort William and Port Arthur, near the west end of Lake Superior. There are no large towns on Lake Huron, for the country to the north of it is only thinly settled.

39. Prairie Provinces. The prairie provinces, Manitoba, Saskatchewan, and Alberta, have grown in

Fig. 5. Grain Elevators on the Prairie, Saskatchewan

population and in importance in the most remarkable way. Railways have been, and are still, constantly pushed into new districts, and wherever they go settlement and cultivation follows, so that all the way from the eastern to the western forests wheat-fields are now in sight from the train, where not many years ago there were only the vast grass plains. Great elevators, or store-houses, stand in every village and town along the railways in Manitoba and Saskatchewan to hold the wheat till it can be sent east through Winnipeg to the Atlantic ports. People have come from all over the world to farm this new country, and Italians, Austrians, Russians, and many other foreigners are settled in Canada. Although they themselves often never learn to speak English, their children become true Canadians. The plains have been divided up into square sections, to be given to settlers. People are therefore scattered over a wide area, and live long distances apart. This makes it difficult for farmers to get their produce to market and to have their children educated, and their lives are often lonely.

40. The towns in western Canada have grown very quickly, even in proportion to the farming population; this is partly owing to the number of people who came into the country to help in constructing the railways and settled in the towns, and partly because it takes a number of traders to supply the farmers with their needs; they usually grow only wheat, and send most of that away to market, so that they must buy other food, implements, &c. If you live in or near an English town, you have probably hardly noticed any change in it in your lifetime, beyond the building of a few new houses. But some of the prairie towns in Canada were eight or ten times as big in 1911 as they were in 1901. Winnipeg

is the most striking example of this, because it stands in the centre of the continent where Lake Winnipeg comes close to the boundary between Canada and the United States, so that all the traffic and the railways between the east and the west pass through it. Even after the middle of last century it was only a little wooden village, an outlying post of the Hudson Bay Company, far away from the towns and settlements of Canada; now it is a town of over 240,000 people, with great buildings and hundreds of miles of railway tracks, full of trucks laden with wheat in the harvest season. It is the junction of the three trans-continental railways, and of fourteen branch lines, and its position has made it the largest market for grain in the empire. It has railway workshops and many industries.

41. The chief towns, besides Winnipeg, are Brandon and Portage la Prairie in Manitoba; Regina in Saskatchewan; and Edmonton and Calgary in Alberta. Regina is the capital of Saskatchewan, and the chief point from which supplies are distributed in that province. Calgary, which is in the valley of the Bow River, a great distance west of Montreal (2,250 miles) and not far from the snowy peaks of the Rocky Mountains, is the chief town between Winnipeg and Vancouver. It is a centre of trade and railway communications, and has many factories, saw-mills, railway shops, &c. Edmonton, the largest town of northern Alberta, and the capital, was once a big fur-trading post of the Hudson Bay Company, and fur-trapping is still important in the forests to the north of it. Calgary had only 4,000 people in 1901, and 40,000 in 1911, whilst the population of Edmonton increased from 2,500 to 20,000 in the same time. Edmonton stands in the centre of an important coal area, and there are

thirty mines in or near the city. There are also large coal mines at Lethbridge, and this coal is largely used on the prairies.

42. British Columbia. The development of British Columbia has gone on much more slowly than that of the prairie provinces. This is partly because it is easier to make a living by farming the rich soil of the prairies than by mining or lumbering, which must be the chief occupations in such a mountainous country. It is also because British Columbia is farther from eastern Canada and the Atlantic ports.

43. Victoria, on Vancouver Island, is the capital of British Columbia. It is the headquarters of the Canadian fur-sealing fleet. Three miles north-west of it is Esquimalt, a fine, landlocked harbour, with a railway to the Nanaimo coalfields, eighty miles away. Vancouver, on the mainland opposite Vancouver Island, is the fourth city of Canada. It has one of the best deep-water harbours on the Pacific Coast, and is the Pacific terminus of the Canadian Pacific, Canadian Northern, and several other railways: to these advantages it owes its very rapid growth. It exports all the products of the country, the salmon, the timber, the minerals, the fruit, &c., and many steamers run from its harbour to North American ports, and to China, Japan, and Australia.

44. Barren Lands. The Barren Lands of north Canada are peopled by Indians and Eskimos along the coast, who live by fishing and hunting. As we have seen (§ 24) the ground is frozen through the long dark winter, when the sun never rises. But in the summer the ground is covered with little flowers, moss like our 'reindeer' moss, and berries, such as cranberries and bilberries. The musk oxen, the caribou or reindeer, and

the moose go north from the forests to graze, the salmon come up the rivers, and the sea-birds, such as the wild geese and the eider ducks, fly away north to their resting places.

45. Indians. The Indians follow after the game, living in tents of caribou skin. In the cold weather they trap fur-bearing animals, whose coats are then thicker, and more valuable in trade. The life of the Indians is full of difficulty, since game is decreasing, and they often go hungry. Of late years they have been helped by missionaries, who have given them tame reindeer, which provide them with milk, meat, and skins for clothing. In all the great stretch of country called the North-west Territories there are only about 5,000 Indians, with 3,500 in Yukon; and in the provinces to the south which are so much more settled by white men, it has been found necessary to induce the Indians who are left to live on special pieces of land set aside for them (called reserves) and give up their wandering life, so that they may be educated and taught farming. The total number of Indians is about 106,000.

46. Eskimos. The Eskimos, who only number a little over 3,000, live along the Arctic coasts of Canada. They despise and hate the Indians, and their habits differ. The Indians live by hunting land animals along the rivers, seldom use dogs, and usually avoid the sea. The Eskimos hunt whales, walrus, and seals, eat raw meat, use dogs (which are more like tame wolves), and avoid inland districts. They are entirely dependent on the sea animals, which they hunt in their skin canoes or *kayaks* and kill with harpoons. They use the skins for clothing, canoes, tents, &c., the bones for weapons, the sinews for thread, the oil for giving light and warmth, and the flesh for food. All the wood they have is drift-

wood, and during the nine months of winter they live in huts made of ice and snow.

47. Communications. Canada, as we have seen, is a land of lakes and rivers, so that the first and easiest way of getting about was in boats, and canoes are still the only means of getting from one place to another in large parts of east Canada (see § 15). Canada is a difficult land in which to make good roads, partly because they are scoured and flooded by the melting snow in spring and sometimes by heavy rains in autumn, and partly because of the difficulty of getting labour and good road-material. The earliest roads in the east were forest tracks, with logs or brushwood laid on them in the soft places. Macadamized roads have now been made instead, in the east, but on the prairies the present roads are often much more difficult to get along than the old tracks, because then the whole country was open, and people could go round all the low places, or drive along the side of the track on the open prairie. The Great Lakes play a very important part in carrying the grain and other produce from west to east in south Canada, but elsewhere it is the railways which have made the country accessible. There are three great lines, the Canadian Pacific, the Grand Trunk Pacific, and the Canadian Northern.* The Canadian Pacific runs all across the continent, from the east to Vancouver, with numbers of branch lines. It crosses the Rockies at Kicking Horse Pass, almost exactly a mile above sea level; here the train is on the great divide or watershed of Canada. The Bow River, up whose valley it climbs, flows east to Saskatchewan and Hudson Bay, and the Kicking Horse to the Columbia and the Pacific. The Kicking Horse valley is a deep narrow gorge, where the line crosses and

recrosses the foaming river, and is carried on ledges blasted out of the rock walls. Next it crosses the Columbia, which is here flowing north between the Rockies and the Selkirks, before climbing to the beautiful Alpine scenery of the Selkirks. On the west side of the Selkirks the train again goes over the Columbia, here flowing south, and then crosses the Gold Ranges and the Cascades by narrow canyons or ravines, where the rivers thunder below and the rocky cliffs tower high above.

The Grand Trunk Pacific also crosses the continent, from the east to Prince Rupert, and is opening up the country to the north of the track of the Canadian Pacific Railway. It is hoped that Prince Rupert, its terminus at the mouth of the Skeena, will become a great port. It has an easier route across the Rockies than the Canadian Pacific Railway, with a low pass and a gradual ascent.

The Canadian Northern has not yet been completed right across the continent. It runs over much the same country as the Canadian Pacific and Grand Trunk lines, but its route leads as far north as Edmonton, and then south through British Columbia to Vancouver. The National Transcontinental line, also unfinished, has a route from Quebec farther north than that of the other main lines. The only other important line is the Intercolonial Railway, which connects the Maritime Provinces with Quebec and Ontario.

As for seaports, we have already read the names of the largest— Quebec and Montreal on the St. Lawrence; Halifax and St. John on the Atlantic coast, notable as being open in winter, when the St. Lawrence ports are frozen; Vancouver and Victoria on the Pacific coast, with Prince Rupert promising to make a third of first rate importance.

EXERCISES

1. Note the various fisheries which are important to Newfoundland and Canada.

2. Draw a map or maps of Canada so that you may compare (*a*) the three main physical divisions, (*b*) the regions of forest, grass lands, and barren lands, (*c*) the different agricultural districts.

3. What natural products of Canada are connected with manufactures in Canada, and where are they found?

4. In what respect do you think Canada is of greatest importance to the empire, and why?

5. Name the chief ports of eastern Canada. How does the climate affect navigation there?

6. Account for the quick growth of towns in the prairie provinces. Give examples.

CHAPTER III

THE EMPIRE IN AMERICA: (*b*) THE WEST INDIES, ETC.

48. West Indies. The islands of the British West Indies are like small links in a chain which stretches from Florida in North America to Venezuela in South America. They include, from north to south, (1) the Bahamas, (2) Jamaica, the largest of the British islands, with the small Turks and Caicos Islands, and the Caymans, (3) the Leeward Islands, (4) the Windward Islands, including Grenada, St. Lucia, St. Vincent, and the Grenadines, (5) Barbados, Trinidad, and Tobago. British Guiana in South America, British Honduras in Central America, and the islands of Bermuda, half way between the West Indies and Nova Scotia, are included in them.

49. Except the Bahamas and Barbados, the islands are mountainous, and are the tops of a range of mountains, the rest of which lie under the sea. Many of the splendid land-locked harbours are the craters of extinct volcanoes, filled with water; and earthquakes and volcanic eruptions are frequent in the islands. Of these harbours the finest are that of Kingston, the capital of Jamaica, and the Gulf of Paria, between Trinidad and the mainland, which, it is said, could shelter the navies of the world. From the central ranges of mountains in these islands, thickly covered with vegetation, long spurs run down to the coast, and in the valleys between are many rapid rivers. The Blue Mountains in the centre of Jamaica are among the best known and loveliest. The scenery is the most beautiful imaginable, with the deep blue sea, dazzling white sand, and mountains covered with palms, flowering trees and ferns, and capped with clouds. The Bahamas and Barbados, which are built up of coral and sand, are different, since they are low and not very fertile, as there is not much soil on them. The Bahamas number over 3,000, but only thirty are of any size: the capital is Nassau, on New Providence, an island about the size of the Isle of Wight. The chief occupations are fishing for sponges and corals and getting salt from the lagoons.

50. Climate. As the islands are in the tropical belt the climate is hot and damp, but up in the hills it is cooler; and the islands are pleasanter to live in and much healthier than the mainland of Central America. Some of the Leeward and Windward Islands are drier than the other islands, since they have few springs and have been almost cleared of forest.

51. Population. The population of the West Indies is mixed, as it consists mostly of the remnants of the

Indians who were the original inhabitants, the white settlers, and the descendants of negroes who were brought from Africa as slaves in the past. The native population is now mostly negro. The white people are decreasing in numbers.

52. Agriculture. Agriculture is the chief occupation in most of the islands; but the West Indies are not as thickly peopled as many lands where tropical products are grown. The people vary from 12 to each square mile in the Bahamas, which, as we have seen, are not fertile enough for much cultivation, to the very large number of 1,036 people to each square mile in Barbados, which is almost entirely under cultivation. Once the West Indies produced all the sugar, coffee, cotton, and other tropical products that were imported into Great Britain, but owing to the abolition of slave labour and other causes they became much less prosperous. All the labour in the fields is done by the natives and by coolies from the East Indies. Of late years the number of tourists who visit the islands has brought some return of prosperity. The forests are full of valuable trees, such as the coco nut palm and the bread-fruit tree, and many of them bear delicious fruits, some of which, like oranges, bananas, and pine-apples, we know well in England. Sugar-cane was for a long while the chief crop, but after beet sugar began to be extensively used and to make sugar-cane a less paying crop, much land was again planted with other crops, such as cotton, cocoa, arrowroot, and coffee. The West Indies are so conveniently situated on one of the great trade routes of the world, which has become more important still since the opening of the Panama Canal, that it is easy for them to send their sugar, fruit, and so forth either to America or to Europe. The chief manufactures are

concerned with sugar, and the rum and molasses which are got from it. We may specially notice the trade between Canada and the West Indies, two parts of the empire which are not separated by a very great distance, but whose climatic conditions differ so far that each cultivates important products which the other cannot.

Fig. 6. The Pitch Lake in Trinidad

53. Minerals. The chief mineral products are gold and diamonds in British Guiana, and petroleum oil in Trinidad. Work was only begun on the oil fields in 1911, but great quantities of oil have been found and exported. In Trinidad is the Pitch Lake, an expanse of asphalt $1\frac{1}{2}$ miles long and a mile broad, with a strong unpleasant smell. Here the buccaneers and pirates, who once sailed these seas, used to tar their ships.

54. The Bermudas. The Bermudas are a group of tiny islands lying in the Atlantic Ocean, about half way between Nova Scotia and the West Indies. There are about 300 islands, but taken altogether they are only a quarter as big as the county of Rutland. They are flat coral islands and are covered with semi-tropical trees and flowers. The beautiful scenery and the delightful climate, which is influenced by the warm Gulf Stream, causes many people to visit them, and it is said that nearly 30,000 tourists go to them each year, mostly from America. The capital, Hamilton, is on Main Island, which is the largest, 14 miles long and about a mile broad. There are no rivers, and the wells are salt, so that the population—white people and negroes—depend on rain water for drinking.

55. British Honduras, which is on the mainland in Central America, has low swampy land along the coast, called the Mosquito Coast, and rises to high land at the back of the colony. There are several rivers which are navigable for some distance in boats, the chief being the Belize. The population, Mosquito Indians, mixed with the descendants of negro slaves, and a few hundred whites, is very scanty, averaging four people to each square mile. There are fine trees in the river valleys, where also agriculture is mostly carried on. Mahogany, cedar, and logwood are brought down the rivers. The climate is comparatively cool, and sea breezes blow for most of the year.

56. British Guiana, which lies on the coast of South America, between Venezuela and Dutch Guiana, differs from the West Indian islands in that it has a plain of sand and clay on the coast, made of alluvium brought down by the many rapid rivers, which fall in cataracts and rapids from the high country inland. Though

Fig. 7. Potaro River, British Guiana

there are several great rivers, like the Essequibo, the Demerara, and the Berbice, they are not of much use for navigation, because of these falls and rapids. Georgetown, the capital, stands at the mouth of the Demerara, where there is a safe harbour. British Guiana is a magnificent country as yet little explored, and there are no doubt valuable minerals in its mountains. It contains 99,000 square miles, but only 130 square miles are cultivated. The climate is hot and much the same all the year round, but it is not unhealthy. Most of the country is covered with forest, full of tall trees and immense flowers. Gums and rubber are got from these forests, but little timber is cut at present, partly because it is so difficult to get the logs down the rapid rivers. As in the West Indian islands, sugar is an important crop, and it is from here that the familiar Demerara sugar comes. Most of the labour is done by East Indian coolies, as when the negro slaves were freed they no longer could be forced to work, and prefer to live an idle life. The original people of the country are South American Indians.

57. Falkland Islands and Dependencies. The Falkland Islands, South Georgia, the Sandwich Group, the South Shetlands, and the South Orkneys are groups of islands lying to the south-east and south of South America. They are the highest points of a ridge which continues the range of the Andes in South America under the sea, and seems once to have joined South America to the Antarctic continent. The Falkland Islands (which are the nearest to South America of all these groups) consist of two large islands, East Falkland and West Falkland, and about 100 little ones, and they are very much like the islands off the western highlands of Scotland. All the islands in these groups are hilly

or mountainous and have broken coasts with good harbours. Port Stanley, the capital of the Falklands, which is as far from the Equator as London is, is a harbour of refuge for vessels which have been damaged in the passage round Cape Horn. The South Orkneys and the South Shetlands are largely covered with ice, and there is always pack ice in the seas round them, so that it is often difficult for a vessel to get near them. The climate here is much colder than in the Falklands. Rain often falls in the Falkland Islands, but in South Georgia, the South Orkneys, and the South Shetlands it is usually in the form of snow, even in the short summer. Hence it is not wonderful that the South Orkneys and the South Shetlands are little known, though they are visited by whalers. There are over 3,000 people in the Falklands, mostly engaged in keeping sheep, but some years ago it was discovered that there were many whales in these waters. A man who went exploring in 1892 wrote that as far as his eye could reach from the deck of his ship he could see their curved backs sticking out of the water in thousands. Since then whaling has become an important industry in the islands, and has made them much more prosperous, though the whales have become fewer.

Exercises

1. By looking at a map of the world, work out the relation of (*a*) the West Indies, and (*b*) the Falkland Islands, to great trade routes.

2. For what products are the West Indies specially noted among possessions of the empire, and why?

3. Why do the West Indies attract visitors?

4. What difficulties are found in opening up British Guiana?

CHAPTER IV

THE EMPIRE IN THE MEDITERRANEAN AND WESTERN ASIA

58. We saw in Chapter I that Britain holds certain small territories which guard the sea ways between

Fig. 8. Part of the Rock and Harbour, Gibraltar

different parts of the Empire. In this chapter we find three of the most important of such points – Gibraltar, Malta, and Aden. Since the Suez Canal (§ 124) was

cut between the Mediterranean and Red Seas, so that great ships can sail from one to the other, these seas have become parts of the shortest route to India and the East.

59. Gibraltar is a steep rock, 3 miles long and 1,400 feet high, joined to the south of Spain by a low isthmus. It stands at the entrance from the Atlantic

Fig. 9. Valietta Harbour, Malta

to the Mediterranean Sea—the Strait of Gibraltar—which is only 9 miles wide. Britain commands that entrance from 'the Rock', which is a strong fortress with a town, harbour, and coaling station for ships at its foot.

60. Malta is an island which guards the narrow part of the Mediterranean between Sicily and Africa. Valletta, the capital, has two harbours, with a coaling station and arsenal. The island, with Gozo and Comino,

smaller islands near by, is only half the size of the Isle of Man, but has four times as many inhabitants, and is well cultivated, growing oranges and lemons, potatoes, grain, and cotton. There are also fisheries.

61. Cyprus is off the main route by Suez, in the easternmost part of the Mediterranean, but it faces the coasts of southern Asia Minor and of Syria. It is 3,600 square miles in area, so that it is about half as big as Wales, and it has 274,000 inhabitants, of mixed Greek and other origin. It consists of two mountain ranges with a plain between, on which stands the capital, Nicosia. As elsewhere in the Mediterranean, the summers are long, hot, and dry, and the winters mild and wet. The soil is porous, and water soaks away quickly: rain-water is carefully collected for agriculture. Grapes and other fruits, carobs or locust beans, grain, and cotton are grown; there is plenty of live-stock; there are sponge fisheries, and asbestos, marble, and gypsum are found. Copper is also worked, and was famous long ago, so that it took its name from Cyprus.

62. Aden, Southern Arabia, and Sokotra. In Arabia, on the western side of the narrow entrance to the Red Sea, and opposite British Somaliland, lie two small peninsulas, enclosing a bay and harbour. Here is Aden, one of the important outposts of the Empire, guarding the southern entrance to the Red Sea. In the Red Sea entrance itself (the Straits of Bab-el-Mandeb) is the island of Perim, a dry volcanic island with a harbour to the south. Off the south Arabian coast are five uninhabited rocky islands (the Kuria Muria Islands, which were taken for a telegraph cable station); and, five hundred miles away, off Cape Guardafui in Africa, is the island of Sokotra. These islands and Aden, with the bit of country round, belong to Britain, and she

also has the southern coast of Arabia (Hadramut) under her influence. This coastal country, between the sea and the Arabian desert, is dry and thinly peopled, and it has no harbours east of Aden.

Aden is barren and sun-baked, but it has been a trading port for the produce of Arabia for many hundreds of years, and since the opening of the Suez Canal it has become more important as a coaling station.

Sokotra was known to the Egyptians, and its people are partly descendants of an ancient race, and partly Arabs. They keep large flocks and live mostly on dates and milk. Trade is carried on with Arab vessels passing from Arabia to Zanzibar.

63. Persian Gulf. Our Indian empire faces on the west the Arabian Sea, and from this sea the Persian Gulf opens, making a way to Persia and Mesopotamia. A point of command in this gulf is therefore important. There is a British protectorate over the Bahrein Islands, which lie in the gulf off the eastern coast of Arabia. They are small, but populous, and are inhabited by Arabs, Persians, and Indian merchants. They produce dates and beautiful white donkeys, and there are rich pearl fisheries.

64. Mesopotamia was taken from the Turkish empire in the great war. While neither it nor Palestine (§ 72) actually belongs to the British Empire, we must consider them, because we are concerned in their government, and have great interests in them. Mesopotamia means properly the land 'between the rivers' Tigris and Euphrates, but it has come to be used of all the country watered by them after they leave the mountains of Armenia and Kurdistan in which they rise. Mesopotamia lies south of these mountains, south-east of Asia Minor, and west of the Persian hills, and extends inland from

the head of the Persian Gulf (§ 63). The two rivers, after leaving the northern mountains, flow south-east and roughly parallel one to another, until they are 70 miles from the Persian Gulf, when they unite, and enter the gulf as one big river called the Shatt-el-Arab.

65. From the gulf as far north as Baghdad on the Tigris (350 miles direct from the coast) the land bordering the rivers is a low, flat, often marshy plain, made of soil which the rivers have brought down from the higher land behind. Farther up the rivers the land is still mostly low, but less flat until the northern mountains are reached. To the west the Syrian desert lies between the Euphrates valley and the hilly, fertile country which borders the Mediterranean Sea at its eastern end, and includes Palestine.

66. The climate of Mesopotamia is dry, for it is far from the influence of the open sea, and sheltered by high land on the north, east, and west. A little rain falls in winter, which may be cold—occasionally cold enough for snow. But the summer is very hot and dry.

67. The Euphrates and Tigris, however, bring water to this dry land, in somewhat the same way as the Nile does to Egypt (§§ 111–121). Rising in the mountains of the north, they are flooded when the snows melt, and are highest in Mesopotamia in April and May. From early times, thousands of years before Christ, there were strong states in Mesopotamia, which used the river waters for irrigation by building canals. Under Turkish rule the irrigation works and cultivation went to ruin, but since the British came some of the lost land has been cultivated again.

68. The vegetation consists of thorny plants, which camels can eat, in the dry land, reeds and rushes in the marshes, liquorice and shrubs and a few trees along the

rivers. Wheat, barley, and beans for harvest in spring, and millet, maize, and dates for harvest in autumn, are chief crops. The date is the most important article of food and export. The chief plantations of the date palm are along the Shatt-el-Arab.

69. Various minerals are known to exist, but mostly in the hill country. Oil and bitumen are the most important, and are found at several places.

70. The population is mostly Arab in the low lands, and Kurdish in the hills. There are smaller numbers of many other peoples, for traders and many pilgrims come from other lands. The Arabs are either settled, living on the lands where cultivation is possible, or nomad (i. e. wandering), in the lands where settlement is not possible, because they are too dry to bear crops or sufficient pasture for animals all the year. The people are divided into many tribes.

The chief towns are the port of Basra on the Shatt-el-Arab, and Baghdad and Mosul, great trading centres, both on the Tigris, where routes from the hill country cross the river and go west over the Euphrates and the desert beyond. Basra is reached by ocean steamers, and the rivers above are navigable with some difficulty, the Tigris being better than the Euphrates. Some of the native boats are strange: the *Kufeh* is a round boat of basket-work covered with bitumen, of a sort which has been used on the Tigris for thousands of years: and the *Kelek* is a raft of wood floated down-stream on skins blown up: at the end of a voyage the wood is sold and the skins are deflated and carried back by land.

71. The Baghdad Railway. Besides the desert caravan-routes and the rivers, a railway enters Mesopotamia at the north-west, and is almost completed by

way of Mosul and Baghdad to Basra and the Persian Gulf. This line, known as the Baghdad Railway, runs through Asia Minor to the Bosporus opposite Constantinople, so that there is almost complete railway connexion between Europe and the Persian Gulf a matter of great importance for communication, not only with Mesopotamia, but with India and the East.

72. Palestine. This land includes a low coastal plain in the west, bordering the Mediterranean Sea, the mountainous district of Judah to the east of it, and to the east again the sunken valley of the river Jordan, which flows into the Dead Sea. This intensely salt lake is 1,300 feet below the sea-level. The climate is not too dry, for the most part, to prevent the land from being fertile; and wheat, the vine, olives, and other fruits are grown. The holy city of Jerusalem is the capital; Bethlehem and Nazareth are other places no less famous in the interior of the land, and the chief places on the coast are Haifa, Jaffa (Joppa), and Gaza. The land is connected by railway with the Baghdad line to the north, and with Egypt to the south by a railway which has been called the 'milk and honey' line for a reason you can easily guess. There are also railways from the coast at Haifa and Jaffa to the interior. It is to be hoped that this most famous land, saved from bad government, will again flourish as it used to do.

Exercises

1. Draw a sketch map of the sea-route through the Mediterranean and Red Seas to India, and mark the stations of the Empire along it. (For the Suez Canal see § 124.)

2. Notice any vegetable products specially obtained from the Mediterranean islands. Are they found in any other

part of the empire with a climate like that of the Mediterranean?

3. Why is agriculture backward in Mesopotamia? How is it hoped to improve it?

CHAPTER V

INDIA

73. The Empire of India is divided into India proper and Burma, but we will read about these two divisions separately, as they differ much.

India itself may be divided into three parts: the peninsula to the south, the northern plains, and the mountain ranges to the north and north-west of the plains.

74. The Peninsula. The peninsula of India is a plateau land of open valleys and gentle slopes, which falls away to lowlands round the coast. It is called the Deccan. Between the plateau and the lowlands bordering the Malabar coast, to the west, is a range of forested hills, a steep barrier called the Western Ghats, from the ghats, or passes, through which the uplands beyond are reached. To the east, on the Coromandel coast, are the Eastern Ghats, but these do not form a continuous range of hills, as they are broken by the valleys of big rivers, which spread out in deltas along the coast. To the north of the peninsula lie several other ranges, the Vindhya, Satpura, and Aravalli hills, and there are also hills in the south, the chief being the Nilgiri. So southern India is a high land surrounded by ranges of hills. Hills also rise for 1,500 or 2,000 feet above the plateau. They are often covered with forests, and many have steep, craggy precipices, difficult to climb. All over India the chiefs have turned them into castles

and strongholds. Between the wild and rocky hills of the Deccan are fertile stretches of cultivated land; much of the soil is a rich black earth which is splendid for growing cotton.

75. The big rivers of the Deccan all run across from the Western Ghats to the Bay of Bengal to the east, excepting two right in the north of the peninsula, the Narbada and the Tapti. The chief rivers running east to the Bay of Bengal are the Mahanadi, Godaveri, Kistna, and Cauvery, and they drain almost the whole of southern India.

76. These river valleys running across the peninsula make travelling from north to south difficult, so that the Deccan is divided into a number of native states, such as Baroda in the north, Hyderabad in the centre, and Mysore in the south. To the west is the province of Bombay, and to the east that of Madras. The largest towns are on the coast, where there are good harbours, or easy ways to travel inland; and the interior, where the rainfall is more uncertain (§ 86), is more thinly peopled. The inland towns are mostly native capitals.

77. Bombay has a good harbour, and since a way inland has been made by building railways through the hills, it has become the second most important port in India. It ships cotton to the Lancashire mills, and has many factories itself to make cotton goods. Madras, on the other side of the peninsula, lies in the fertile lowlands, and has an artificial harbour, but it has not now nearly so much trade as Bombay.

78. The Plains. As we go north from the plateau land, the hills bordering it flatten out, and we reach the broad alluvial plains, which stretch from the Arabian Sea to the Bay of Bengal, and include the richest and most populous part of India. They have been made by

two great rivers, the Indus in the west and the Ganges in the east, with their tributaries. All these rivers rush down from the mountains, wearing away the rocks, and carrying down the waste of rock as mud and sand, particularly when they are swollen with the melting snows. In the course of ages they have formed, out of this waste called alluvium, these vast plains at the foot of the Himalayas. Every year the Indus and the Ganges are pushing their deltas farther out into the sea.

79. The Indus. The Indus rises in the mountains, and leaves them near Peshawar, where Great Britain keeps garrisons to guard the Khaibar Pass into Afghanistan. The river spreads out in the Peshawar valley, but soon narrows again to a gorge, and receives tributaries from the mountains of Afghanistan to the west. After reaching the open plains it receives the waters of some big tributaries in the district of Punjab, which means the land of the five rivers. The largest are the Jhelum and the Sutlej. For many months the broad beds of these rivers are a network of streams, which carry very little water; but in early summer, when the snows melt in the Himalayas, they swell into broad, deep, and swift rivers, which rage across miles of river bed, and sweep along uprooted trees in the wild current. The banks in the Punjab are low, and if a river is checked by some obstruction it takes a new course. Many villages have been destroyed in this way, and the Government spends enormous sums in building embankments to hold the river in. After its junction with the Punjab tributaries, the Indus flows, like the Nile, through an arid land with no tributaries, till its waters split up into several channels in its delta, south of Hyderabad. (This is not the same Hyderabad as that in the Deccan.) Like

the Nile, too, the Indus has a strip of cultivated land on each bank, flooded or irrigated from the river, with dry, almost desert, country beyond. To the east of the Indus lies a great stretch of this arid country, in the territories of Sind and Rajputana, where the rainfall is scanty and the surface is bare sand and rock. Over much of it, however, there are scattered towns and villages, the people grow fine crops in lucky years, and keep big herds of cattle and sheep and goats. They have to get their water from deep wells in the rock, for there is only one river, the Luni, in this dry country, and it often disappears in the sand. It drains to the Runn of Cutch, which is a broad barren plain of sun-baked mud for most of the year; but when the south-west monsoon blows, the Arabian sea flows in and turns it into a big, shallow, salt lake. Along the southern margin of the desert are magnificent cities founded by the Rajput chiefs.

The Punjab towns lie near the great rivers or on the roads that lead to them. On their upper courses and at the foot of the mountains is a row of towns, of which Lahore and Amritsar are the chief. There are few towns in the dry country on the lower Indus; Hydera-bad, the capital of Sind, is the chief.

80. The Ganges. Let us now turn to the Ganges, which flows across the eastern plains and makes a wide delta in the Bay of Bengal. Here the low islands between the river channels, called 'Sunderbunds', are covered by thick jungle or by grass and tall trees, infested by tigers, and unhealthy for men. The Ganges receives many tributaries from the Himalayas, for there is much more rain here than in the mountains west of the Indus. The soil brought down by these rivers has gradually pushed the Ganges to the southern edge (of

the plains. The chief of these tributaries is the Brahmaputra, which crosses Tibet and flows through the forests and tea-gardens in Assam to join the Ganges near its mouth. The plains are less dry than those of the Punjab and Sind, for the rainy monsoon winds blow up the Ganges valley from the south-east. The lower plain of the river forms the province of Bengal; here are many old and splendid cities and thousands of villages where peasants cultivate the village lands.

81. Towns of the Plains. Delhi, now the capital of India, has always been important, because it stands where the Indus desert and the fertile Ganges plain meet. Since the plains are hot and unhealthy in summer, the Viceroy and his court go up to Simla in the Himalayas in the hot season. Many of the old towns stand on the big rivers, which were the trading highways before the railways were built: the walled city of Agra, with its magnificent palaces and tombs, is on the Jumna, and Allahabad stands where this river flows into the Ganges. Benares is the holy city of the Hindus, and pilgrims come in thousands to wash in the holy Ganges water. Patna, in one of the richest rice-growing districts, is another of these ancient cities. In them famous old trades are carried on, as well as modern manufactures, and beautiful jewellery, metal-work, cloths, and embroideries are made by the native craftsmen. The chief port, Calcutta, till lately the capital of India, stands on the Hugli, one of the streams by which the Ganges enters the sea.

82. The Mountains of North India. North-west and north of the river plains rise high mountains. They are divided into three main groups or systems: the Sulaiman system, in Afghanistan and Baluchistan to the west, the Himalayas in the middle, and the Patkoi

Fig. 10. Street Scene in Calcutta

system, dividing Assam from Burma, in the east. The Sulaiman Mountains are a jumbled mass of bare peaks, where the rivers have often made deep gorges. When a river rises, as a result of rain higher up the valley, the whole gorge, dry a short time before, turns into a raging torrent, which sweeps away any unlucky traveller who is using the dry bed as a pass through the mountains.

83. The Himalayas. The Himalayas rise as a mighty snow-capped barrier along the northern edge of the plains, and they contain the loftiest mountains in the world. Mount Everest, the highest peak on the Tibetan side of the main range, is 29,000 feet high, that is over $5\frac{1}{2}$ miles. The scenery is the grandest in the world, and is like that of the Alps on a much larger scale, with towering peaks, huge glaciers, and wild rushing rivers. The passes are very steep and difficult, and some are always covered with snow. Along the foot of the mountains, on the Indian side, there are swamps called *terai*, and above them gravel slopes, all thickly forested and unhealthy. Behind these foot-hills there is often an expanse of open country called *dun*, also covered with forest; and then there is another belt of hills 50 to 60 miles broad before we reach the great main range, snow-clad throughout the year, and crossed by narrow deep-cut gorges through which the rivers flow.

84. The Himalayas are cut off from the mountains of Central Asia by two great valleys, which start less than 50 miles apart: one contains the Indus, and the other the Sanpo, which is believed to be the headstream of the Brahmaputra, though the gorge which connects them has never been penetrated. The Indus gorge, probably the grandest in the world, is known: the river flows between

precipices 2,000 feet high. Among the mountains are lower basins or depressions filled with alluvial soil, of which the fertile vale of Kashmir is the largest.

85. In the mountains towns are found where there are fertile valleys or passes. Some have become important as 'hill stations' where Europeans go when the heat in the plains becomes unbearable. Such a station

FIG. 11. DAL LAKE, KASHMIR
In a fertile valley among the Himalayas, irrigated by canals from a tributary of the Indus.

is Simla (§ 81). In the eastern Himalayas are two independent states, Nepal and Bhutan, which communicate with Tibet by high and difficult passes. Between them are Darjiling, with its tea plantations, and Sikkim, a Himalayan state under British protection, through which passes the chief trade route between Tibet and the eastern Ganges plain. In Kashmir, farther west,

only the valleys are fertile, and Srinagar, the capital, lies in the largest. West of Kashmir is the North-West Frontier Province, created so that the wild frontier tribes may be prevented by the British from raiding the lowlands. Peshawar, which commands the Khaibar Pass (§ 79), is the chief town. The routes south of the Sulaiman Mountains are commanded by the fort of Quetta in Baluchistan.

86. Climate. India is the land where the winds known as monsoons are most strongly marked. These winds change their direction (as their name signifies) according to certain seasons. Thus (1) June to October is the rainy season of the south-west monsoon; (2) November to February is the cool season of the north-east monsoon; (3) March to May is the hot season when the north-east monsoon is gradually changing back to the south-west monsoon. The south-west monsoon blowing over the Arabian Sea brings very heavy rain in summer to the western side of the peninsula, but loses its moisture as it passes over the Western Ghats, so that to the east of these hills, in the Deccan, not much rain falls. The same monsoon blowing over the Bay of Bengal brings heavy rain to Assam and the eastern Himalayas. The wind is turned along the face of the Himalayas, and becomes drier as it passes west over the plains, so that those of the lower Indus are almost without rain, and desert. For the north-east monsoon, blowing off the land, is always dry, except where it brings some rain to south-eastern India after passing over the Bay of Bengal. It is also comparatively cool; but India has no real winter, except in the far north. Sometimes in May, before the south-west monsoon arrives, India, except at high elevations, is very hot: the ground is parched and cracked, the

pools and rivers are dry. The stifling air is full of dust and haze, and all India is longing for the change of the monsoon. At last the weather breaks. Vivid flashes of lightning light up the sky, and the rain falls in torrents with a deafening noise. In an hour or two dry river beds are filled with rushing torrents, and in a few days the water begins to flood the surrounding country. The dusty earth turns to mud, and is soon covered with green grass and flowers.

87. Famines and Drought. Although the seasons in India are very regular and the rains generally begin at the same time of year, they sometimes begin late or end early, or there are breaks when the weather clears up in the rainy season. It is this that makes some parts of India liable to famines, when not enough rain falls for the crops to grow properly, and then great numbers of the starving people have to be fed by the Government on food from lands where there is plenty.

88. Forests. The forests of India are of great importance to the country. The trees hold the rain and prevent it all running away in destructive torrents Instead it sinks into the ground and forms springs. The people are dependent on the forests for all sorts of necessary things. From them the people get poles for the walls of their houses, and grass and palm-leaves for the roofs, as well as all sorts of roots and fruits on which they can live in times of famine. All their ploughs and carts and fences and ropes are made of wood and boughs and fibre from the trees. These valuable forests, which cover about a quarter of the Indian Empire, are looked after by the Government. In a country which differs so much in different parts in height, distance from the Equator, and rainfall, the forests are of varying sorts. In the rainiest parts (on

the western mountains and on parts of the eastern slopes of the peninsula) they are evergreen and often contain very big trees. In the Deccan, where it is drier, they shed their leaves every year: here are all sorts of valuable trees, like ironwood, teak, and sandal, and much bamboo. Then in the dry plain of the Indus there are only low plants, with willows and other trees in the river valleys, where they are watered once a year when the river is in flood. The slopes of the Himalayas are covered with vast forests of oak, pine, and deodar, and many other trees, under which are beautiful masses of rhododendron.

89. Animals. There are many different sorts of animals in India, more than in the whole of Europe. In the forests live many monkeys, swinging from tree to tree and warning the traveller of the approach of a beast of prey by their cries. One species, the langurs, are sacred to the Hindus and are very tame. Tigers, which were once very common, are being driven back by the spread of population and by the fact that a reward is paid for killing them; but panthers are common. They are very cunning, and often steal animals from the natives' herds. There are many wild cats and wild dogs, and black bears, which are more feared than tigers or panthers, because they are not very quick to see and hear and so often meet a man face to face unexpectedly and maul him. Then there are the fine wild cattle of different sorts, the beautiful deer and the wild sheep, some of which have enormous horns. They and the goats climb up and down the precipices in the mountains. The wild boar, or pig, is one of the bravest animals in the world, and scorns to run away from man or beast. The sport of hunting him is called pig-sticking. The natives use humped cattle to do the agricul-

tural work that is done by horses or machinery in England, and cows are sacred. Buffaloes are kept for their milk, and sheep and goats.

90. The birds and insects are also numerous. All sorts of big birds of prey scavenge the country, and game birds, like grouse and pheasant and partridge, are shot in great quantities. Harmful insects which bring malaria, plague, cattle-disease, and so forth, are very common. People often have to sleep in rooms into which these insects cannot penetrate, and cattle are protected with netting. One insect, the lac insect, provides a sort of varnish. A great danger to life in India is snake bite, for there are many poisonous snakes.

91. Agriculture. As we have seen, far the most important occupation in India is agriculture. Nine out of every ten people are dependent for a livelihood on the fields and their produce. Of the very large number of people living in India by far the most are found in the fertile plains, particularly in that of the Ganges. The dry country, like the desert in the west of Rajputana, only supports comparatively few, and so do the forest lands.

We have seen how dependent the Indian farmer is on the rain which the southern monsoon brings, and how, if it fails, he and his family may starve. In such a country irrigation is of great importance. In the Punjab and the United Provinces in the north great tracts of desert land have been converted into fruitful fields by dams across the rivers, which force the water into canals. These canals have cost enormous sums of money to build; some of them are over 200 miles long, and carry more water than the Thames at London Bridge. The dry soil is turned to rich mud, and great

crops of wheat are grown and exported from Karachi, the port at the mouth of the Indus. On the east coast of Madras, where the Deccan rivers find their way to the sea, there is also a system of canals which turn the land into one great rice-field. Besides the canals much of the dry land is irrigated from wells or big 'tanks' or reservoirs. Water is raised from the wells in a leather bag on a rope which is pulled by oxen walking away down a slope.

In the alluvial soil of the great river plains almost any crop can be grown, but wherever there is enough water rice is the chief crop, and it forms the main part of the food of the people of Southern India. Its cultivation is hard and unhealthy work, because it is grown and harvested in wet and swampy ground. In the north millet is eaten most, and it and wheat are the chief crops. For purposes of trade cotton is the most important crop; it is grown mostly on the west side of the Deccan, with Bombay for the chief market and sea-port. Part of the Deccan is covered with a rich dark soil, called 'black cotton soil' because it is specially good for cotton. Other important crops are oil-seeds, sugar-cane, and jute, and a great deal of tea is grown under European management in Assam.

92. Population. India has a population of 315,000,000—three-quarters of the whole population of the British Empire—but only about 120,000 are British born. The millions of natives are not like the uncivilized negroes of Africa, or the few Red Indians in Canada and black fellows in Australia. There are some wild, uncivilized tribes, but India has contained highly civilized peoples since the dawn of history. She has been invaded many times over in past centuries by races from the north, so that it is hard to know now

which are the people who lived in India first. There are many different races and tribes who speak many languages and have many different religions. The Indian village is a little world in itself, where potters, weavers, carpenters, and others hand on their trades from father to son.

93. Communications. The British began to build railways in India as early as 1853, and now there are 36,000 miles of them. About half are on a wider gauge than those at home—5 ft. 6 in. The northern plains are particularly well provided with railways, as they are easily built there, but the large rivers need some great bridges to cross them. The principal ports are (1) Calcutta (§ 81), at the head of the Bay of Bengal, for Bengal and the north-east; (2) Bombay (§ 77) in the west, approached by railway through one of the few easy passes through the Western Ghats; (3) Madras (§ 77) on the east coast of the peninsula; (4) Karachi (§ 91), near the mouth of the Indus, for the north-west.

94. Burma, the northern part of the Malay Peninsula, is a land of mountain-ranges running from north to south, with the valleys of the Irawadi, Salwin, and other rivers between them. To the west are the Patkoi Mountains, and to the east the Shan Hills. Lower Burma is very damp, particularly on the coast, much wetter than Upper or Northern Burma. The rivers are long and swift, and the mountains are covered with forest, with jungle along the rivers. These rivers form great swampy deltas at their mouths, and during the wet season the low-lying land is flooded for miles. Such country is ideal for growing rice, and rice is the most important crop in Lower Burma, and the chief food. All the villages are built on the banks of the rivers, with the houses raised on poles to keep them

from the swamps and from wild beasts; and the rivers are the highways of the country.

Rangoon, the capital of Burma, is built a few miles from the sea, on a river connected with the Irawadi. Round the city, which contains many splendid temples, are palms, banana groves, bamboo thickets, and rice-fields. Rangoon is a busy port, exporting teak and rice.

From Rangoon we can sail nearly 800 miles up the Irawadi. Four hundred miles up the river we reach an old town with a thousand temples, many of them built long ago, for the people of Burma were rich and civilized when our own ancestors were savages. A hundred miles higher we reach Mandalay, also with splendid temples; to the north of it lie the famous ruby mines of Burma. Above Mandalay the Irawadi flows between forested mountains. The gorges become narrow and winding, and the river is broken by rocks and rapids, so that boats can go no farther.

The Salwin is navigable for less than 100 miles, for above its delta its course is broken by rapids. Its swift current brings down vast quantities of teak from the mountains, and this is exported from Moulmein, the chief city of the delta.

As we have seen, rice is the main crop in Lower Burma, which is the chief rice-exporting country of the world. Sugar and tobacco are also grown. In Upper Burma, on the high plains among the mountains, wheat and cotton are grown and coal and petroleum are mined. In the forests grow the teak trees, which provide a valuable and very hard wood. The trees are dragged to the rivers by tame elephants, and are floated down to the delta ports, where elephants are again used to drag the huge logs up the mud banks.

Burma is not thickly peopled, particularly in the north-east where the Shan tribes still lead an indepen-

dent and uncivilized life, cultivating a little land and collecting food from the forest. The Burmese are a kind and courteous people, and often very good-looking in their bright silk clothes.

95. Indian Islands. There are some groups of small islands in the seas around India.

In the Bay of Bengal are the Andamans and the Nicobars. The Andamans are mountainous islands, thickly covered with bamboos, and inhabited by a very ancient and interesting black race, who have never been mixed with Malays as in most Indian islands. There is a fine harbour at Port Blair. Convicts are sent to the Andamans to prison. The Nicobars, farther south, are inhabited by Malays.

The Laccadive and Maldive Islands, to the west and south-west of India, are two groups of coral atolls (islets forming a ring of coral which encloses a lagoon). Between the two groups lies the isolated atoll of Minikoi. The climate is moist and hot, so that on any islands where there is room jungle plants grow thickly. Coco-nuts have been cultivated from time immemorial, especially on the coral rock, and on the sandy land grain is grown. Most of the islands are inhabited by brown, black-haired natives, who are vigorous and intelligent. In the Maldives they are governed by their own Sultan, as they have been for many centuries, under British guidance. The Laccadive Islands are under the Indian government, the Maldives under that of Ceylon.

South of these islands and on the trade route between Ceylon and Mauritius, lie the Chagos Islands. Chagos means 'oil', and oil is got from the coco-nut palms, which are worked by planters from Mauritius. In one of the atolls is a fine harbour, and this is used as a coaling station for ships.

Exercises

1. Draw a map of India showing the plateau of the peninsula, the low northern plain, and the surrounding mountains.

2. What are the monsoons? How do they affect the rainfall of India? Draw a map to show the parts of India which have most and least rainfall.

3. What is meant by the failure of the monsoon? What are the results of failure?

4. Why are the Indian forests important? How and why do they differ in different parts?

5. Which parts of India are most populous? Which least? What connexion is there between the density of population and agriculture?

6. Give any reasons you can for the position and importance of Bombay, Delhi, Simla, Peshawar.

CHAPTER VI

CEYLON AND THE FAR EAST

96. Ceylon is an island, rather smaller than Ireland, which lies to the south of India, but does not belong to the Indian Empire. It is almost joined to the mainland by a row of islands and sandbanks, with very shallow water between, called Adam's Bridge. The island is mountainous, and was once covered all over with forest; but for many centuries its position in the middle of the Indian Ocean and its favourable climate have made it a desirable place to many peoples, so that much of the forest has been cleared to allow crops to be grown. In the past huge ponds called tanks were made, from which to irrigate land which has since been left uncultivated, and is now once more covered with dense forest. The highest part of Ceylon is in the southern mountains, and

the most conspicuous peak is called Adam's Peak. Most of the island is flat or undulating. The chief rivers rise in the mountains to the south, but they are so rapid and so much silted up that they are of no use for navigation.

97. Climate. The climate is governed, like that of India, by the monsoons. The south-west monsoon brings summer rains to the west and south sides of the island; and the north-east monsoon, having crossed the Bay of Bengal, has gathered moisture and brings winter rains to the east and north sides of Ceylon. Thus the east and north are dry in the summer. The forests and the crops vary according to whether they are in the dry or the wet zone.

98. People. The earliest inhabitants of Ceylon were the Veddas, and some of them still live a harmless, savage life in the remote forests. In early times the island was invaded by the Sinhalese who lived in the dry north and grew rice, which they irrigated from their great tanks. Then they were driven into the wetter south by the Tamils, who still grow tobacco, rice, &c., in the north, but they have let the irrigation tanks of the Sinhalese fall into disuse.

99. Cultivation. In all the forest and scrub land the trees are simply burnt down, and the fertile land is cultivated for a few years, when it becomes so thick with weeds that the farmer moves on to another patch. This wasteful way of farming has been giving way for the last century or so to big plantations, largely under European management, which grow produce for export. The hills are terraced, and great quantities of tea, rubber, and cocoa are grown. Most of the labour is done by Tamil emigrants from southern India. Ceylon is also the only country where cinnamon is grown, and

there are very many coco-nut palms. The natives grow quantities of rice for their own needs, particularly in the wet south-west, where there are many streams with which to flood the land. Ceylon is also well known for the many beautiful precious stones found in the mountains, and for its plumbago, which is the mineral from which lead pencils are made.

FIG. 12. PALM-TREES ON SEA-BEACH AT MOUNT LAVINIA, CEYLON
(Typical of many coasts in tropical lands.)

100. All the trade of Ceylon passes through Colombo, the capital, which is also a great port of call in the Indian Ocean. It is one of the busiest ports of the world, and has a fine artificial harbour. Trincomali, on the east coast, has one of the finest natural harbours in the world, but it is out of the direct route for ships. There are not many towns, as Ceylon is an agricultural country, but the island is well served with roads.

There is a railway along the populous south-west coast, which has been extended to the north.

101. Straits Settlements and Dependencies. To the south of Burma the long Malay Peninsula thrusts out into the sea. At the extreme end lies the island of Singapore; off the west coast is the island of Penang (or Prince of Wales Island) with a strip of coast on the mainland belonging to it called Province Wellesley; and between is the town of Malacca and the district behind. These three—Singapore, Penang, and Malacca—are called the Straits Settlements. Though they are very small in themselves, the Governor of the Straits Settlements administers or controls several other much bigger countries. There are (1) the Federated Malay States (Perak, Selangor, Negri Sembilan, and Pahang), which occupy the middle of the Malay Peninsula; (2) Johor, which occupies the end of the Peninsula; (3) British North Borneo, Brunei, and Sarawak, which are part of the island of Borneo, to the east; (4) the island of Labuan, which lies off the north-west coast of Borneo; and (5) the Cocos-Keeling Islands and Christmas Island, little islets south of Java.

The name of the Straits Settlements points to a reason for their value to the empire. From a map of Asia you can judge how important are the Straits of Malacca as part of the line of communication between Europe, India, and the Far East. The Straits Settlements command these straits, and Singapore, at their southern end, is a very busy port.

102. Malay Peninsula. All along the Malay Peninsula runs a broken range of mountains, with rivers winding among the foot-hills and thence through valleys to the sea on either side. The eastern shores, washed by the rough China Sea, are edged with clean sandy beaches

or bold headlands of tree-covered rocks; but on the west, next the quiet waters of the Straits of Malacca, the land changes very gradually to mangrove swamp and then to wide levels of soft mud. Here and there are beautiful groups of islands covered thickly with vegetation. Singapore is an undulating island; the soil is not naturally very fertile, but has been improved by long cultivation. Penang is simply a hill rising some 2,000 feet above the sea, and much of it is uncultivated. Both Penang and Singapore have important harbours.

103. British Borneo lies in the north-east of Borneo, which is the second largest island in the world. The British part, about one-third of the island, is divided into British North Borneo, Sarawak, the town of Brunei and a piece of country round it, and the island of Labuan. When Europeans first visited Borneo they found various Malay Sultans in power, of whom the Sultan of Brunei was the most powerful. He ruled very badly, and a young Englishman, called Captain James Brooke, got permission to rule over part of his dominions of Sarawak for him. Since then Sarawak, still ruled over by the descendants of James Brooke, has been enlarged until only a small part, with the town of Brunei, is left of the old Sultanate. It and Labuan are managed by a British official.

The country is mountainous, and British North Borneo consists of a great granite peak, Mount Kinabalu, with the foot-hills and alluvial plains round it. There are several big navigable rivers in Sarawak, particularly the Baram, the Batang Lupar, and the Timbang, but in British North Borneo, where Mount Kinabalu is nearer the sea, the rivers are smaller. All over Borneo they form the chief routes of communication. The towns

and villages all lie on their banks or at their mouths, and the natives travel up and down them in their canoes, bringing jungle produce—rubber, camphor, rattan-canes, and eatable birds' nests down to the Chinese traders on the coast. These natives live in long houses, each house forming a village by itself, and sheltering a number of families. They make their houses, their boats, and their blow-pipes from the great forest trees, and grow rice in little clearings. Sago, got from the pith of a palm, forms a large part of their food.

104. Climate. All these countries, though they are considerable distances apart, lie near the Equator, and have an equable climate, because they are all near the sea or surrounded by it. Borneo and Singapore are very wet all the year round. The Malay states are also damp, but those in the north and east have less rain than those in the south and west. The driest part of these territories is the Cocos-Keeling Islands.

105. Forests and Products. All these lands and islands are so damp that they are covered with dense, tropical forest, except in those few places where the land has been cleared for cultivation or mining. The chief places where the forest has been cleared away are parts of Kelantan, Malacca, Johor (Malay Peninsula), Sarawak (Borneo), and the whole of Singapore. Palms, like coco-nut and nipah, provide food and material for thatching houses and making baskets and mats, and all sorts of fruit and spices are found. Tapioca, sugar-cane, cotton, tobacco, coffee, &c., are cultivated, and half the world's supply of tin is dug in the mountains of the Peninsula.

106. Animals. In the forests are many cats, bears, elephants, rhinoceros, monkeys, and so on: the large

Fig. 13. A River in the Malay Peninsula (tropical vegetation)

ape called *orang-utan*, the 'wild man', is only found in Borneo.

107. People. All the people who live in these territories governed from Singapore are rice-eaters, and rice is the chief crop of primitive people, like those of Borneo, and the wild tribes in the centre of the Malay Peninsula, who only produce food for their own use. The more developed people, like the Malays, who live mostly on the coasts, want to grow more food than they require for themselves, so that they can exchange it for other things they need, like metals, and stuffs to make clothes. These lands are not fitted to grow great quantities of rice, so the Malays gather such crops as spices, sugar, tobacco, and rubber, for which their country is fitted. When it was seen how fertile the soil was, and how valuable these products were, many Chinese, and then many Europeans, came to develop the Malay countries, and to make the Malay Peninsula into one of the gardens of the world.

108. There are two small stretches of territory on the coast of China which belong to Britain. These are Hong Kong and Wei-hai-wei.

109. Hong Kong. Hong Kong is one of a group of islands off the mouth of the Canton River in China. The promontory on the other side of the narrow strait separating it from the mainland, called Kowloon, is also British, and some more of the mainland with several other islands has been leased to Britain by China.

Hong Kong is a rocky island, not very large, but it is important because on it is Victoria, with one of the finest ports of the world—ten square miles of land-locked water. The Kowloon peninsula is also bare and hilly, and the villages lie mostly on the coast or in the fertile valleys. The climate is very hot, but not really

unhealthy. Almost all the rain falls in the summer, but there are plenty of streams which provide water all the year round. (Hong Kong means 'fragrant lagoon'.) Thirty-nine out of every forty of the people living in the colony are Chinese, and there are many of them, for Hong Kong is a very busy place. Enormous numbers of ships call here every year, bringing European and American goods for the peoples of the East, and taking back tea and silk from China, coal from Japan and Manchuria, sugar from Java, and so on. The island is a British naval base, and there are many factories making all sorts of goods.

Judging our three eastern ports, Hong Kong, Singapore, and Colombo, by the amount of shipping which visits them, Hong Kong is the most important ; and all three are among the twelve busiest ports in the world.

110. Wei-hai-wei is a hilly piece of country on the Yellow Sea, with a harbour sheltered by Liukung Island, in the centre. Great Britain has leased it from China to provide a shelter for her warships, since Hong Kong, the nearest naval base, is 1,300 miles away.

The climate is much pleasanter than farther south in China, and the country is inhabited by many Chinese natives, who cultivate the land very carefully.

Exercises

1. Account for the importance of Colombo, Singapore, and Hong Kong.

2. How is the rainfall distributed over Ceylon according to seasons? Account for the distribution.

3. Notice the important minerals and forest products which are found in the Straits Settlements and their dependencies.

CHAPTER VII

THE EMPIRE IN NORTH AND EAST AFRICA

111. Egypt and the Anglo-Egyptian Sudan fill up most of the north-east part of Africa, and consist of desert plains of worn-down rocks and sand and silt brought down by the rivers long ago. Across these burning plains, for 1,500 miles, runs the great river Nile, which is altogether 3,500 miles long. This river is of enormous importance to the dry land, because, instead of sinking away into the sand, as we might expect, it carries water all the year round all the way to the Mediterranean, and in the summer, the driest time of the year, it rises and floods its valley. Why is this?

112. Sources of the Nile. The Nile rises far away on the high plateau where the Victoria Nyanza lies (§ 126). This lake is fed by many streams: the Kagera, the longest, is usually taken to be the headstream of the Nile. As it flows north it passes through the tropical region of constant rains, and receives many tributaries in the same wet region. The Nile also receives the water from Lake Edward, into which the rivers from the snowy peak of Ruwenzori drain. We can understand now that it is these constant tropical rains which supply the Nile with water all the year round in its course across the desert. The summer floods are caused by the great tributaries bringing down the heavy summer rains which fall on the Abyssinian mountains: they run in steep narrow valleys where they cannot overflow.

113. The Nile in the Sudan. Gathering up the waters of these rivers and lakes, the Nile descends by

falls and rapids to the level savanas of the Egyptian Sudan. Here it becomes a sluggish river, choked by floating islands of dense vegetation, torn from its swampy banks. These are called *sudd*, and are the homes of hippopotami and crocodiles and even of hunting and fishing natives. On the left bank it receives a tributary, sluggish like itself, the Bahr-el-Ghazal (Gazelle River), and then widens out into the papyrus swamps of Lake No. Many thousands of years ago the

Fig. 14. The Nile in the Sudan, with islands of 'sudd'

Egyptians used stuff made from these reeds to write upon, and it is from this that our word 'paper' comes.

114. The Abyssinian Tributaries. For about 1,000 miles the Nile flows through the Sudan, and during this part of its course it receives the three great tributaries from the Abyssinian highlands—the Sobat, the Blue Nile, and the Atbara. The Blue Nile flows in at Khartum, the Sobat 500 miles above it, and the Atbara 200 miles below. After that the Nile reaches the desert region, and there are no more tributaries. These Abyssinian rivers bring down rich volcanic mud

as well as water, and it is this mud which makes the inhabited part of Egypt, in the Nile valley, so splendidly fertile. The Blue Nile is ever so much bigger and stronger in the wet season than the main stream, or White Nile; it holds up the water of the White Nile, so that there is a long stretch of quiet water above where the Blue Nile enters, and this water only begins to flow down the valley when the water coming from the Blue Nile begins to fall.

115. Course through the Desert. After the Nile enters the real desert country, it has still 1,000 feet to fall between Khartum and Cairo, and it has a winding course through the limestones and sandstones of the desert, which often stand up as high cliffs on both sides. To the east the Nubian Heights, a range of steep, bare hills, cut off the Nile from the Red Sea. On the west is the flatter Libyan desert with oases here and there. In the 1,300 miles between Khartum and Aswan the bed is broken by reefs of rocks which are dry when the Nile is low. These stretches of broken water are called 'cataracts', though the fall in the river-bed is never great or sudden enough to cause real waterfalls. Assuan, which is near the First Cataract, is the place where up-stream navigation of the Nile is first interrupted, and we can see by the ruins of many ancient temples that it was important thousands of years ago.

116. Upper Egypt. Below these cataracts comes the level valley which forms Upper Egypt. It is from five to ten miles wide, and covered with rich soil, but on either side of the cliffs which shut in the valley the desert stretches away to the horizon.

117. Lower Egypt. The delta of the Nile forms Lower Egypt. Most of the water reaches the sea through the Damietta and Rosetta branches of the

river. The other mouths have been choked by the mud brought down and turned into lagoons along the coast. To the west of the delta is a big depression, which is irrigated from the Nile, called the Fayum, and to the east is first the Suez Canal and then the high, rocky peninsula of Sinai.

118. Climate. All the central part of Egypt and the Sudan is very hot and dry; there is hardly any rain, and dry northerly winds blow all the year round. This is because this region is not affected either by the damp winds which blow in the region of the tropic to the south, or by the northern rain in the Mediterranean. On the Mediterranean coast of Egypt there is a fair amount of rain in the winter, and towards the south of the Sudan the tropical summer rains begin to make themselves felt.

119. Vegetation. Thus in Egypt and in the northern Sudan the ground is bare, except in the fertile valley of the Nile, in the scattered oases, and in a few spots in the Sinai peninsula and the Red Sea hills: here the luxuriant vegetation provides a grateful contrast to the sandy and stony desert. Going south into the Sudan we come first to coarse grass and scattered acacias, and then to thicker thorn forest. Gum, which is got from these bushes, is one of the chief articles of trade in the Sudan. Along the slow rivers of these plains and round the lagoons are masses of marsh vegetation. At last, as the land rises to the Central African Plateau, we find park-like country with scattered trees and thick belts of forest along the rivers.

120. Animals. In the desert regions there are few wild animals, except gazelle, fox, and jackal, with the 'jackass' (common on the fringes of the desert) and wild sheep in the hills. But in the Nile valley we find the

natives using horses, donkeys, and camels for transport and in the fields, and they have herds of water-buffaloes. As soon as we reach a more favourable climate in the Sudan, and plants and grass appear, there are all sorts of big wild animals—lions, giraffes, elephants, rhinoceros—and the Arab tribes have great herds of camels, cattle, sheep, and goats.

121. The Nile and Agriculture. You see at once how enormously important to mankind in Egypt and the northern Sudan the river Nile is. It is only in its valley, and in a very small area round the springs of the scattered oases, that there is enough water for crops to be grown or animals kept. As Egypt is rainless, water has somehow to be taken to all cultivated land from the Nile. The river is lowest from April to July, and it is high from August to November. In winter, the coolest season, most of the land is under crops. Ever since men first planted crops in the valley, many thousands of years before Christ, they have made use of the Nile floods in the same way, and this system is still carried on in Upper Egypt. The land is divided by mud banks into enclosures or basins, and the flood water is led on to it by canals. As soon as the enclosure nearest the river is covered by four or five feet of water, it is allowed to flow into the next enclosure, until the whole valley is one great lake, with villages rising out of it on islands. After about six weeks the level of the water falls, and the soaked land is gradually uncovered. The fine mud brought down by the river forms a fresh layer of soil in which the crops of cereals and vegetables are grown. There are also canals which bring water from the river all the year round, but they have to be much bigger and deeper or the water would not come up them when the river was low. Up to late years most of the land

depended on the floods, so that a flood which did not rise quite so high as usual meant that many fields could not be cultivated at all till next year. We can imagine with what anxiety the Egyptian natives watched the rising river.

But since cotton-growing was begun in Egypt, about a century ago, the old way of using the Nile water has been changed, for cotton ripens later in the year than cereal crops, and requires water just when the river is lowest. So under British government great sums of money have been expended on building huge dams, which hold up the flood water, so that it may be available at any time of year. This arrangement also makes it possible to grow two or three crops in a year, instead of only one. The biggest dam is at Assuan, and the water supply is carefully regulated according to the height of the river. The whole of the delta and the Nile as far south as Assiut are now supplied with water for the fields all the year round.

122. Cotton and other Crops. These dams have made it possible to grow great quantities of cotton in Egypt. Its fibres are short but silky, and 'mercerized' goods made from it look almost like silk. Oil is got from the crushed seed, and is used for cooking and for making soap and food for cattle. Sugar and rice are other summer crops, and winter crops include wheat, barley, maize, millet, peas and beans, clover, and vegetables. The most important tree is the date-palm.

123. Population. The people who cultivate the valley and the delta in their simple and primitive way, and live in villages of mud-brick huts, are descendants of the ancient Egyptians who grew crops here 5,000 years before Christ. Egypt is famous for the great pyramids and temples built in ancient times, and preserved from

decay by the dry climate. The valley is thickly peopled, but in the desert there are only a few wandering tribes. Since camel caravans no longer cross the desert, these tribes find it very difficult to live, and many of them come and settle on the fertile land. A few live in the oases, and grow date-palms and cereals. As we come to the Sudan the country is rather more thickly peopled, and we find tribes of brown-skinned natives often living in permanent villages and pasturing their flocks on the savana-lands. Farther south, in the rain-forest country, are the black negroes, like those of Uganda, who are less developed and civilized than the peoples of Egypt and the Sudan. But the whole of the Egyptian Sudan, as big as a quarter of Europe, only contains one-third as many people as London.

124. Communications. Up to the middle of last century all the trade of Egypt and the Sudan was carried on by boats on the Nile, or by caravans of camels crossing the desert. The railway has made a great difference. A line follows the Nile valley all the way from Alexandria to points in the Sudan south of Khartum, with the exception of a bit between Assuan and Wadi Halfa, from the first to the second cataract. Cairo is connected with its ports on the Mediterranean and at the mouths of the Nile and the Suez Canal (Alexandria and Port Said), and with Jerusalem and points in Syria and Asia Minor; and there is a line from Berber to Port Sudan on the Red Sea, which connects the Sudan with its seaport. The Nile is still much used by boats for carrying all sorts of goods between Cairo and Assuan, and again south of Khartum, above the cataracts. Camels still bring produce to the railways and the river-steamers for export; but the days of the great caravans, bringing

gold, ivory, and slaves from Central Africa, or silks, carpets, and precious stones from the East to Cairo, are over.

Egypt is of importance as a centre of imperial air routes, between Britain and southern Africa, India and the East, and Australia.

Fig. 15. The Suez Canal
A British Warship photographed from an Australian mail steamer.

The Nile has always been the great route through Egypt and the Sudan, and the Suez Canal, connecting the Mediterranean with the Red Sea, is a tremendously important highway of ocean traffic. So we find that all the big towns and ports are on one or the other of these waterways. Alexandria, on a spit of land between the Mediterranean and the delta marshes, has become the chief port at the Nile mouth, as Rosetta and Damietta are largely blocked up with silt, and river-transport is

no longer so important since the railways were built. Port Said, a new port opened when the Suez Canal was made, is now much frequented, more so than Suez, the Red Sea port at the other end of the Canal. Some of the Egyptian towns, which were once important because of their positions on the caravan routes, are less so since the coming of the railway. Cairo, at the head of the delta, is the largest, and the capital. These towns have picturesque native quarters with narrow streets, bazaars and mosques, and a cleaner and healthier European quarter. Khartum, the capital of the Egyptian Sudan, stands where the Blue and White Nile join, and is a meeting-place of many routes.

125. Uganda is a large and little-known country to the west of Kenya Colony (British East Africa), a part of which it resembles in many ways.

126. Victoria Nyanza. To the south of it lies the Victoria Nyanza or lake, which is the biggest fresh-water lake in the world, with the exception of Lake Superior, in North America. It is the highest of the great African lakes, and lies 3,700 feet above the sea. The land falls away from the rim of its basin all round so that it lies in a big depression on top of a plateau. The Victoria Nile (§ 112) flows from it, with great leaps over waterfalls; it then spreads out into a backwater full of islands, and flows to Lake Albert, which lies 2,000 feet lower, and is much smaller than Victoria Nyanza. To the west of Victoria Nyanza rises an isolated mountain, crowned with snow, called Ruwenzori. It is almost surrounded by shallow lakes, and the whole of southern Uganda is, in fact, full of beautiful crater lakes, stagnant water courses choked with marsh vegetation, and slow-moving rivers. The climate is beautiful and healthy, except perhaps down in the river valleys, and there is

plenty of rain, so that the country is covered with fine forests.

To the north, as in Kenya Colony, the country is much drier. Rain only falls in summer, and the climate is very hot. Except in the river valleys it is a bare country, in some parts almost desert, and very different from the thickly forested south of Uganda.

127. Natives. Uganda has advanced greatly in prosperity since the native wars were ended, at the beginning of this century. The natives are a fine people, and when white people first came to their kingdom they were surprised to find how civilized it seemed for an unknown part of Central Africa. Well-made roads ran between the tidy villages. The negroes were all carefully clothed. These people are now mostly Christian, and are keen to learn to read and write. The north part of Uganda is thinly peopled, but all along the Nile Valley, from Lake Albert to the Egyptian frontier, are Mohammedan Sudanese negroes, who make splendid soldiers.

128. Sleeping Sickness. A great danger in Uganda is the sleeping sickness, particularly on the thickly forested shores of Victoria Nyanza. Here the natives have been moved away, and the trees, which give shelter to the tsetse fly, have been cut down. This fly conveys the disease to men when it bites. It is hoped that in years to come the tsetse will be got rid of, and then the dreaded disease will disappear.

129. Trade. Since Uganda was proclaimed a British protectorate many traders have come into the country, and such things as rubber, ivory, hides, coffee, and cotton are now exported. As it is lower and so hotter than the highlands of Kenya (§ 130), it will always be more a black man's than a white man's country. The govern-

ment capital is Entebbe, a beautiful place on Victoria Nyanza, and Mengo, or Kampala, the native capital, lies twenty miles to the north of it.

130. Kenya Colony (British East Africa), like South Africa, consists largely of high plateaus lying from 5,000 to 8,000 feet above the sea, and sloping down to lowlands along the coast. It also contains some of the highest mountains of Africa. The peak of Mt. Kilimanjaro (19,700 feet), the highest in the continent, is in the north-east of the Tanganyika territory which was formerly German East Africa; and the second highest, Mt. Kenya (17,000 feet), is in the colony to which it has given its name, as are many other lofty peaks, some so high that they are always covered with snow, even though they lie so close to the Equator. These mountains rise above the Rift Valley, which is a vast trough, 30 miles or so wide, running all the way from Lake Nyasa to the coast opposite Aden. It was caused by the slipping down of the rocks for a depth of two or three thousand feet, so that the sides of the valley often rise as rocky precipices.

131. Rivers. The Juba, the longest river, which divides British Kenya from Italian Somaliland to the north, runs through the dry region, and so is only useful for navigation for part of the year. The next biggest river, the Tana, rises on the slopes of Mt. Kenya, and is fed by snows from the peak, so it contains plenty of water, but it also is not of much use for navigation, because of the many rapids and rocks in its course.

132. Climate. Kenya would be one of the hottest parts of Africa, since the Equator runs right through it, if it were not also the highest. As it is, it has a hot climate in the lowlands, but the high plateau

is comparatively temperate, and more suitable for European settlement. There is no dry season all over the country, as we find farther south, but there are parts of the country where there is very little rain, especially in the north, between Lake Rudolf and the mouth of the Juba. On the high plateaus and the mountains and in the coastal belt there is plenty of rain.

133. Vegetation. The vegetation depends, as we should expect, partly on the rainfall and partly on the height of the land. As both the rain and the height vary so much we shall also find very different sorts of vegetation. On the coast are first mangroves, and then coco-nuts which supply all the natives' needs – food, drink, material for his huts, cloth and rope made from the fibre, pots and vessels from the shell, &c. On the fertile foot-hills of the plateau are grown all sorts of tropical fruits. Then we ascend steeply to the Nyika Plateau, which has mostly a porous soil into which the rain sinks rapidly. Thus much of it is almost desert, bare and brown for most of the year, particularly where the rain is scantiest. Here grow coarse grasses, thickets of thorny acacia, gnarled baobab trees, &c. When we have crossed the Rift Valley and reached the higher land, where there are more rain and rivers, we find open prairies and savana-lands and on the slopes of the mountains tropical forests. Higher still come thick bamboos, yews, and juniper, and as we climb up the mountains we come, at about 10,000 feet, to the mountain flowers and plants—giant heaths and lobelias and groundsel 8 feet high, as well as plants like the English dandelion and bulrush. These become smaller and give place to lichens and moss, and finally to eternal ice and snow. As there is no very definite wet and dry season in East Africa the land is gay with bright flowering plants in

FIG. 16. BACKWATER OF VICTORIA NYANZA, UGANDA

most months of the year, except, of course, in the dry regions.

134. Animals. Almost every kind of tropical wild animals you can think of, and many curious ones of which you have probably never heard, are found in the forests and on the savana-lands of East Africa. Many rhinoceros, lions, and so on are killed by sportsmen every year, but lately the herds of big game in certain parts have been partly protected from being killed. It would be a pity if all the interesting and beautiful animals were killed off, and there are still many parts in East Africa where they can live far away from any settlements and so do no one any harm.

135. Communications. The opening up of British East Africa, and of Uganda, has been much hindered by the tsetse fly, which carries sleeping sickness to men (§ 128) and cattle. Oxen could not be used for transport, and donkeys and mules, which do not get sleeping sickness, were carried off by lions. So most of the transport, before the Uganda Railway was built, had to be done on the backs of the natives, and the land which lies far away from the railway is still quite uncivilized. This railway runs as far as Kavirondo, on Victoria Nyanza, and since it was finished some thousands of white people, mostly British and Boers, have settled on the British East African plateau, and grow coffee and other crops. The construction of this railway was very difficult, for it had to rise very high and to cross the deep Rift Valley; whole sections of the line were washed away by the tropical rains, and white ants devoured the wood needed in building it.

136. Population. Apart from the white men, the population of Kenya Colony is mixed. On the coast are Arab and Indian traders. The north is scantily

peopled with Somalis and Gallas from Abyssinia and Somaliland, who wander about with their camels, and try to kill any European who comes into the country. On the high plateau and in the mountains are the Masai, the finest and handsomest of the African negro races. Before the white men arrived they were the terror of all other tribes, because of their long spears and the reckless bravery with which they fought; they lived a wandering life, constantly attacking their neighbours. They have, however, a great liking for the white man, and since British rule was firmly established they have given little trouble. But most of the East African natives are negroes of the same great Bantu family as those of South Africa. They live largely in the coastal belt and on the shores of Victoria Nyanza. Some of them, like the Kavirondo, still go completely naked.

In such an undeveloped country there are hardly any towns. The capital is Nairobi, in the high and healthy part at the foot of the Kikuyu Hills; it is only a collection of corrugated iron buildings and native huts, for it was only founded when the railway was built, not many years ago. Mombasa, on an island off the coast, is a bigger place, and much older, for traders came here centuries ago from Arabia and Persia. The old town, with its fort crowning the coral cliffs, the modern English quarter, and the thatched native huts, are set among palms on the sea-shore. The town is now the sea terminus of the Uganda railway, and the chief port, for it has one of the finest harbours on the east coast of Africa.

137. Tanganyika Territory. To the south of the countries just described, extending as far as the Rovuma River, and from the sea to Lake Tanganyika, is that part

of East Africa which was formerly German, and is now under British administration. Here, again, a low coastal plain slopes upward to the central African plateau. The east of the country is drained to the Indian Ocean, the west to Lake Tanganyika, the north to Victoria Nyanza. The country was developed to some extent under the Germans, with plantations of coco-nut palms (in the coast lands), coffee (on the higher ground), cotton, sugar, tea, tobacco, &c. Coal, iron, copper, and other minerals are known to exist. From Dar-es-salaam, the chief port, a railway runs right across the country to Lake Tanganyika, and from Tanga, a northern port, there is a line to the foot of Mount Kilimanjaro: there are also a number of good roads; and some of the rivers and the great lakes are useful for navigation.

138. British Somaliland is a triangle cut out of the north side of the 'Horn of Africa'. It faces Arabia across the Gulf of Aden, and is much more like Arabia than it is like the neighbouring parts of Africa.

It is a somewhat flat country, sloping to the south-east, too flat to make the monsoon winds drop their moisture, so that it is very dry, and very hot. Water has to be got from wells, or ponds floored with clay, and it is often salty or full of sulphuretted hydrogen, which tastes and smells very nasty. Sometimes these wells are 100 miles apart, even on well-known caravan routes. Such plants as grow are scanty and thorny, with coarse grass, except near pools, or on the highest points. There are many sorts of wild animals: and lions, leopards, hyenas, &c., prey on the flocks and herds of the wandering Somalis.

These native Somalis are a brave and cheerful people: they live a hard life, wandering in the dry, half-desert country, in search of grazing for their flocks of camels,

sheep, and goats. They build enclosures of thorn bushes to protect them from wild animals, and dome-shaped huts of sticks and mats for themselves.

There are no railways and no proper roads in the country; the only means of transport is by the camel caravans which thread their way along narrow tracks. The natives ride hardy little ponies.

The only sheltered harbour is at Berbera, the chief town. There are two other small coastal towns, Zeyla and Bulhar, but apart from these ports there are no towns, and hardly any permanent villages.

139. Zanzibar and Pemba. Off the east coast of Africa are two islands which are under the protection of Britain—Zanzibar and Pemba. They are mostly made of coral rock. The climate is very hot and very wet, so that they are trying places to live in for Europeans. But they are covered with luxuriant tropical vegetation, and all sorts of fruits which have been brought from India and China and the East Indies flourish, as well as clove trees, rubber-vines, coco-nuts, and so on. For many centuries Zanzibar has been a famous place among traders from Arabia, India, and China, and it was once the centre of a great trade in slaves. Now, though neither Pemba nor Zanzibar is very big, they have about 200,000 people of many races living in them, mostly negroes, Arabs, and Indians. An Arab Sultan rules from the fine old town of Zanzibar. He has territory on the mainland coast also, called Kenya Protectorate.

140. There are some other islands to the east of Africa belonging to Great Britain. East of Zanzibar, but much farther out in the Indian Ocean, lie the Seychelles Islands; and to the east and north of the big French island of Madagascar are a number of small

British islands, of which the chief are Mauritius and Rodriguez. These two islands and the largest of the Seychelles are rugged and hilly, but there are a number of smaller coral islands and reefs.

141. Seychelles. The Seychelles are largely covered with beautiful trees and gardens, and the people, who are a mixture of French and negroes, are hardy and accustomed to the sea. The biggest island, Mahé, has a fine harbour.

142. Mauritius and Rodriguez. Mauritius depends entirely on sugar-growing; most of the island is given up to sugar plantations. It is very thickly peopled, and there are numbers of Indians. Rodriguez is still a garden for Mauritius, and cattle, goats, and pigs are kept; but it is now a dry and barren place because the forests, which once covered it and preserved the moisture, have been burnt or cut down. It is, however, healthier than Mauritius, where malaria is particularly deadly. Years ago big pigeons which could not fly, called dodos and solitaires, and great land tortoises, lived on these islands, but now they have all been killed.

Exercises

1. Draw a map of the Nile basin, and mark the southern limit of the desert. Note on the map the sources from which Egypt receives its water for irrigation.

2. By looking at a map of the world, judge the importance of Egypt as a centre of imperial air routes.

3. What parts of the East African possessions are fit for white men to settle in? What dangers are there?

4. What territories mentioned in this chapter produce cotton, sugar, wheat?

CHAPTER VIII

THE EMPIRE IN WEST AFRICA

143. Britain has several possessions on the Gulf of Guinea, on the west coast of Africa, which are divided one from another by the possessions of other countries. These are Gambia; Sierra Leone; Gold Coast, Ashanti, and Northern Territories, all adjoining; and Nigeria. The coast of the whole region is beaten by heavy surf, and fringed with mangroves. The climate is wet and very hot: it has always been considered terribly unhealthy for Europeans, though conditions are better now than in the past, because it is better understood how white men may keep healthy in such lands. Inland are dense, hot, wet forests, intersected by many creeks and streams.

144. Gambia is a strip of territory along the river of that name, in the extreme west of Africa. Its chief trading centre is Bathurst, and most of its trade is in ground-nuts, which yield oil.

145. Sierra Leone. Sierra Leone is a mountainous country, with many rivers: the mountains rise, covered with forests, almost from the edge of the sea. The biggest river, the Rokel, forms a fine harbour at its mouth, where the capital, Freetown, stands. The town and the coast are very malarial, but inland, though it is very hot, it is much healthier. Since a railway has been built inland from Freetown many Europeans travel out into the hills by it every day.

This railway has made enormous differences to Sierra Leone in other ways, for it enables the products of part of the wild interior to be got at and brought to the coast for export. Some good roads have also been made; but

Sierra Leone is still largely a savage land. The natives grow rice and cassava for their own food, and the forests are full of delicious fruits; but far the most important thing in Sierra Leone, on which its life and its importance to the world depend, is the oil-palm.

The fruit of this palm, which grows wild in the hot, damp forest, is something like a pine cone. When it is boiled the grease in it comes to the top, and is exported as 'palm-oil' for making soap. The true nut, inside the cone, contains kernels, which are also exported as 'palm kernels', the oil from them being extracted in Europe. Very many natives are employed in getting the 'nuts', but there are still great areas covered with oil-palms where the fruit is never picked.

There is another sort of nut, the kola-nut, which we seldom hear of in England, but in which an enormous trade is done in West Africa. It is almost a necessity of life to the natives in the Sudan, since it enables them to bear fatigue and work on scanty food. The tree grows only in the wet forests, and the pod, not unlike a chestnut in shape, contains up to a dozen nuts.

Besides the few hundred Europeans in Sierra Leone, and the million and a quarter natives, there are the people called Sierra Leoneans, who are the descendants of slaves liberated, in the past, from captured slave-ships by the British.

146. Gold Coast, Ashanti, and Northern Territories. These three countries lie one behind another going inland from the coast. They include, on the east, about a third of the territory which was formerly the German colony of Togo. Altogether they are about the size of England and Scotland. The land is rather flat, not rising above 2,000 feet, so that it is all hot, damp, and unhealthy. Accra, the capital, has the reputation

Fig. 17. Natives extracting Palm-oil in Sierra Leone

of being the unhealthiest European settlement in British West Africa. For nine months of the year there is more or less heavy rain, and during the other three months a dry, cold wind, the Harmattan, blows from the sandy Sahara, filling the air with fine dust.

There is a grassy plain, dotted with palms and shrubs, along the coast ; but inland is untouched forest, covering three-quarters of the country, and in many places so thick that it is dark among the trees even at midday. It is like a weird fairyland of ferns and great creepers and enormous trees. Farther inland the country is more park-like, and in the north-east corner is splendid open country. Many sorts of fruits, including banana, coco-nut, and other useful trees and plants, grow in profusion in the forests. Monkeys, snakes, birds, and horrid and destructive insects are common. The natives live mostly on bananas and the easily-gotten produce of the fertile soil.

The Gold Coast is most famous for the mineral which gave it its name. Gold has been one of the chief exports of the country from far-away times. Of late years cocoa has become important as an export, and rubber and timber also form part of the native riches of the land. The oil-palm and the kola-nut tree are found, as in Sierra Leone. There is much timber forest and fertile land, as yet quite undeveloped.

There are two lines of railway from Sekondi and Accra on the coast to Kumasi, the ancient capital of Ashanti. Away from the lines all goods are carried on the heads of the natives, marching in single file along the narrow forest tracks.

147. Nigeria. The chief physical feature of Nigeria is the great river system of the Lower Niger and the Benue with the big delta which the Niger has built out

into the sea. At the eastern end of the coast the volcanic Cameroon Mountain rises to 13,400 feet; this, until the Great War, was in the German territory of Kamerun, of which Nigeria now includes a western strip, extending northward to Lake Chad.

All along the coast stretches a belt of swamp and impenetrable forest. In the western part is a string of shallow, muddy lagoons, and the Niger delta country, cut up by streams bordered by mangroves, is to the east. Then, inland, come the thick forests, growing thinner as the land rises, till we reach the fertile plains of Yorubaland, about 1,500 feet above the sea, to the west, and to the east the grassy bush, mixed with tall trees, of the upper Benue. Yorubaland has less rainfall than the coast. The natives who live there are more intelligent, so that much of it is cultivated. North of the Benue and the big bend of the Niger comes a belt of high, broken, mountainous country, and many primitive tribes have been driven to take refuge here from the natives who have conquered the northern plains.

From here the great plains of Hausaland and Bornu stretch north towards the desert: these are the rolling savanas of the central Sudan, lying about 1,800 feet above sea-level, and covered, where they are not cultivated, by scattered bushes.

Most of Hausaland is cultivated, and all sorts of crops are grown by the Hausas. Many of the natives of Nigeria are farmers, but the Hausas are the best, and know how to manure and irrigate their crops. They have grown and woven cotton from the earliest times. In the past quantities of cotton cloth and other products travelled by caravan from the Hausa cities to many parts of Africa. The Hausa are descended partly from people from North Africa, who conquered the negroes

of Nigeria and mixed with them, and so they are more industrious and energetic than the pure negroes. They are keen traders, and Kano, their capital, Zaria, and other towns are trading centres for all the central Sudan. They, and other tribes of Northern Nigeria, are also clever weavers, potters, blacksmiths, &c. The natives of the southern forests and the Niger delta are less clever, and have hardly any industries. They collect quantities of palm-oil, rubber, and other products of their forests for European traders. Tin is worked and exported; the principal deposits are in the north. Coal is worked at Udi in the south.

The rainfall gets less the farther we go from the coast and the nearer we get to the Sahara desert. This is why, in south Nigeria, we find rain-forest, and in north Nigeria savana-land, where an extra dry season sometimes leads to failure of the crops and to famine. As on the Gold Coast, the rain comes in the summer and in the winter dry winds blow.

The big rivers, which are navigable for many miles, although they get very low during the dry season, have always provided ways for communication in Nigeria. Now there is a railway, which runs inland from Lagos, the capital, almost all the way through Nigeria, to Kano. Lagos is the chief port, but there are several others, among which Port Harcourt is the outlet for the Udi coal-mines.

148. St. Helena, Ascension, and Tristan da Cunha. Far out in the Atlantic to the west of Africa, the ocean is broken by three small, rugged islands, St. Helena, Ascension, and Tristan da Cunha. All three together are not as big as the county of Rutland. St. Helena and Ascension are very dry and barren, but Tristan da Cunha and the other tiny islands near it are

much wetter and largely covered with grass and low trees. A handful of people live on each. On Tristan da Cunha, only visited now and then by passing vessels, are some descendants of the garrison stationed there when the Emperor Napoleon was imprisoned on St. Helena. The people of St. Helena are a mixed race of European, Indian, and negro blood. On Ascension there are only a few people sent by the British Admiralty to provide ships' stores, &c.

Exercises

1. Work out the belts of different types of vegetation in West Africa, and show how much of each belt falls in British territory.

2. What important commercial products are got from the West African forests?

CHAPTER IX

SOUTH AFRICA

149. In the south of Africa are several important British territories, which together cover by far the greater portion of this part of the continent. They are (1) the Union of South Africa, including the provinces of the Cape of Good Hope, Natal, Orange Free State, and Transvaal, together with South-West Africa, which was taken from Germany in the Great War; (2) territories not in the Union—Basutoland, Swaziland, Bechuanaland Protectorate, Rhodesia, and Nyasaland Protectorate. Of all these countries only Natal, Cape Province, and South West Africa border the sea.

150. Almost the whole of this great stretch of

country lies high; it is only in the lower courses of the largest rivers, and in a narrow belt round the coast (nowhere more than 50 miles broad) that it is less than 1,500 feet above sea-level. From the coastal belt in the east and west the land rises in terraces and slopes which look, from below, like ranges of mountains, to the plateau of the interior of South Africa. The great escarpment or ring of mountains which borders the plateau to the east, west, and south is higher in the east than in the west, and is highest in Natal, where it is called the Drakensberg Mountains. Some of the peaks rise to 11,000 or 12,000 feet and are covered with snow. To the east these mountains fall sheer, with deep ravines and magnificent waterfalls. In the south there are long ranges between the edge of the plateau and the coast. When a traveller has climbed steeply from the coast to the plateau, he finds himself in a flat or rolling steppe country, the *veld*, broken by worn and rocky hills rising from its surface, which are called *kopjes* (pronounced koppies).

151. Kalahari Desert. The northern part of this plateau, which lies mostly in the Bechuanaland Protectorate, is a flat country, the Kalahari desert, which is covered with reddish sand. Over much of it coarse grass grows, but there are no rivers, for the rain soaks into the sand. Farther to the west, South-West Africa (formerly German) is partly a dry land, with desert along the coast, but in Damaraland and Ovamboland in the north there are grass lands.

152. Transvaal Veld. In the Transvaal the veld is divided into the Limpopo high veld to the north, the Bush veld in the middle, and the Transvaal high veld to the south. The Limpopo veld is cut by several rivers flowing from the central Transvaal, and the Limpopo

Fig. 18. Devil's Hook, Drakensberg

itself which drains all north and central Transvaal. The Bush veld is an undulating, sandy country, covered with grass and bush. It is lower and less healthy than the high veld. The Transvaal high veld, to the south, which includes several hilly ridges, like the Witwatersrand, is the most important and most thickly peopled part.

153. Upper Karroo. Almost the whole of the Orange Free State, and the north part of the Cape Province, are included in the high veld or Upper Karroo. This part of the plateau lies about 4,000 feet above the sea and is broken by the pointed or table-like 'kopjes' of which we have spoken. It is covered with grass and thorn bushes. In many parts these have been burnt off, and it is all farming country except in the places, like Kimberley, where there are diamond mines. To the west it is still drier and more barren. The Namaqua highlands, on the north-west edge of the plateau, are a rugged country, where the streams are often dry for long periods.

Basutoland, to the east, is the most mountainous part of the country, and is sometimes called the South African Switzerland. This British territory is not in the Union of South Africa. It yields wheat, maize, and plenty of cattle.

To the south we descend from the plateau by two terraces, the Great Karroo and the Little Karroo, which are walled in by the Lange Berge and the Zwarte Berge. The Great Karroo lies from 2,000 to 3,000 feet and the Little Karroo about 1,500 feet above the sea. They are also very dry and the soil is thin, so that there are no trees except along the rivers.

Then, still going south, we come to the Cape Ranges, rough, bare mountains, with valleys between, which are

Fig. 19. The High Veld

the richest and most populous parts of the farming land in the Cape Province.

The south-east slope from the edge of the plateau to the coast is one of the most fertile parts. It includes Natal and part of the Cape Province.

154. Rivers. South Africa is too dry for great rivers like those of tropical Africa. The Orange, the longest (1,200 miles), carries little water to the sea. Both the Orange and the Vaal, its longest tributary, rise in the Drakensberg, and flow west across the dry veld; the water-courses opening to them seldom contain water except after storms. All South African rivers come down in flood after rain, for the water runs off the sun-baked ground to the nearest water-course instead of sinking into the soil. The flooded streams tear away their beds and deepen their valleys very quickly. Such valleys hinder rather than help communications, for in flood they cannot be crossed by the fords or 'drifts', and when they are dry they are very steep to get up or down. As the Orange River flows west through the dry region it loses much water by evaporation, and shrinks in size as it nears the sea. It leaves the high plateau by a deep gorge. The Limpopo, which flows first north and then east, rises in the Witwatersrand. In parts it is only a string of pools in the dry season, infested with crocodiles. It forms falls as it descends to the coastal plain in Portuguese East Africa.

155. Climate. You will no doubt have noticed how dry a country South Africa is. If it were broader, so that the centre were farther from the sea, it would have a great desert in the middle, like the Sahara. As it is, the Kalahari desert is comparatively small. The east is wetter than the west, because the south-east trade winds strike against the high escarpment in the east.

dropping their moisture, and passing on as dry winds. All the west of the country is so dry that agriculture cannot be carried on without the help of irrigation, and the strip between the coast and the western edge of the plateau is the driest of all. The wettest part is on the east side of the Cape peninsula.

Most of the country has its rain in the summer, between October and March, mainly in thunder-storms, which are accompanied by vivid lightning and often by big hailstones. Part of the west coast of the Cape Province—round Cape Town—has its rain in the winter, and the summer months are almost rainless. This is because it is affected by the north-westerly winds, which drop their moisture on reaching the high edge of the plateau, just as the south-east winds do on the other side of South Africa. These north-west winds from the cold Atlantic do not carry so much moisture as the winds from the warmer Indian Ocean, so that is why the east coast gets more rain, and the rainfall extends farther inland than is the case on the west coast.

As none of South Africa is very far from the sea, and as most of it lies so high, it has a more temperate climate than other places in the same latitude. It does not vary very much at different times of the year; and is about as hot in summer as Spain or southern France, and very sunny. The most disagreeable features are the dust-storms, and the hot, dry winds which blow in the coastal belt.

We have seen that the east coast is wetter than the west. It is also much warmer. This is because the warm water from near the Equator flows south along the east coast, warming the winds and making the coast hotter than it would otherwise be. This current is

balanced by cold water which comes from the south and flows north along the other or west side of South Africa as a cold current, chilling the winds which blow inland over it.

156. Vegetation. The chief difficulty with which both wild and cultivated plants have to fight in South Africa is not so much a continued shortage of rain as that there are often long periods when none falls at all, even in places where at other times there is a fair amount of rain. This prevents any thick luxuriant growth of trees or flowers. In the driest part of the veld to the west, and on the Karroos in the south, there are many plants with special arrangements either for storing up rain or for catching an extra large amount when it falls. Some store up moisture in thick fleshy stems, leaves, or bulbs; some have tiny leaves which do not require much water; some have long roots going down to water deep underground. This dry country is only sparsely covered with these plants, which are grey and brown like the stones, and with stunted bushes, except during the rains, when little flowering plants spring up everywhere. As we go east over the veld and the rainfall becomes greater, we find that the ground is covered with grass and that there are trees and shrubs scattered about. But it is still too dry for forests. It is this sort of country that we find in the east of Cape Province, Orange Free State, the Transvaal, Bechuanaland, most of Natal, and a large part of Rhodesia. The only part of South Africa where we find true forest is a small part in the extreme south, where the areas of summer rains and winter rains meet, so that there is a considerable amount of rain all the year round, and no long droughts. Eucalyptus, however, flourishes as it does in Australia (§ 185), whence it was brought to South

Africa. It has been planted in many places and supplies timber for railway sleepers and pit-props.

As we have seen, the east coast is warmer and wetter than anywhere else in South Africa, and so here, in a narrow belt along the coast of Cape Province and Natal, we find tropical plants, such as palms and mangroves, and many tropical fruits, such as pine-apple and banana. Crops like sugar-cane and tea can be grown in this strip.

157. Animals. All the big animals which live in tropical Africa are found also in South Africa, but now such animals as elephant, rhinoceros, lion, hippopotamus, and giraffe only exist in the most remote and unvisited parts of the country. Leopards, which lurk in the rocky hills by day and come out at night to prey on the farmer's sheep, are still fairly common, even near Cape Town, and there are many sorts of beautiful antelopes. So many of the game animals have been killed off that the Government has set aside some tracts of country where they may not be touched.

158. Population. The population of South Africa is quite different from that of Canada and Australia, because here there are few Europeans as compared with the large number of dark African natives (under $1\frac{1}{2}$ million white people out of a total population of six millions). On the other hand, there is a larger number of Europeans, compared with the native population, than in India. There are over 600,000 Indians and other Asiatics. The Europeans also are not mainly British, as in Canada and Australia, but are divided into Dutch and British. There are almost as many Dutch as British, and they speak a different language, a Dutch dialect, and have different customs.

In Canada and Australia the natives of the country

decreased quickly in numbers from the arrival of white men, but the negroes of South Africa have increased and thriven. None of the hard manual labour is done by white men, but, on the other hand, the negroes are not at all fond of hard work, so that it is largely done by people from India and the Malay Peninsula and by men who are half native and half white. There are about four million Bantu natives in South Africa. More than half live by cultivating their land and keeping cattle, under their own chiefs, undisturbed by the Europeans. Most of the rest live on and cultivate land owned by Europeans or by the Government ; they work part of the year for the owners of the land or give them part of their crops. Some of them, but not very many, work in the towns or in the mines.

The Dutch people in South Africa, or Boers, are descended from a small collection of Dutch people who were sent to South Africa in the 17th century by the Dutch East India Company. The British have ruled part of the country since 1806. Then came the Boer war, when we fought and beat the Boers at the end of the last century. Since then the British and the Boers have joined together to govern South Africa. The Dutch still live mostly on the land, raising crops, keeping cattle and sheep, and growing fruit, while the British live in the towns and manufacturing and mining centres. The Dutch are a pastoral people, simple in their habits, and at home with a gun or in the saddle. But since the Union of South Africa more of them are joining in the work of governing the country, and more British are becoming farmers than formerly.

159. Agriculture and Livestock. The farmers of South Africa have to fight against many difficulties

which the farmers who are opening up new land in the other dominions do not meet with. As we have seen, much of South Africa is too dry for growing wheat, and over most of the plateau, or high veld, there are few constant streams from which the land might be irrigated. Much of the land is thus only suitable for keeping cattle and sheep. Even then the farmer has to find them extra food in the dry winter, for the grass then dries up into dead tufts, though it grows very quickly again in the early summer when the rains begin. Water has to be caught in a dam for the animals to drink in the winter.

But there is a still worse difficulty with which the sheep or cattle farmer on the high veld has to contend, and that is the numerous and serious diseases which attack his flocks and herds. Some years ago a disease called rinderpest (cattle plague) worked such havoc among the cattle that it is reckoned that 90 out of every hundred animals died, and the game suffered equally. There are other diseases, almost as deadly, which are carried by ticks. Horse-breeding, which has for long been one of the chief industries, has been made very difficult by the horse sickness. This has made many parts uninhabitable by horses, and though a horse which has had the disease once does not get it again, and they can be vaccinated to prevent them getting it, it will be a long time before the country is healthy for them. The tsetse fly is also very dangerous to horses and cattle, but it prefers wild animals to bite, and so is getting less common.

Sheep farming is most important in the east of Cape Province and the Orange Free State, and in the high veld of the Transvaal. The lower bush veld is infested with tsetse fly, and is unhealthy. Many sheep are also

kept in the Karroo, where the farmer can get enough water. Stock-raising is important in South-West Africa also, and under the Germans it exported hides, horns, wool, and meat.

160. It is in the Karroo and South-West Africa, also, that most of the ostrich farms are found. The birds graze in great farms, wired in, each bird having about 20 acres, a piece of land as big as several of our English fields, to feed on. The tail feathers are plucked out once a year and exported.

161. Of late years farmers on the veld, tired of fighting the diseases which attack their flocks and herds, have been turning more to the raising of crops, in spite of the lack of rain. Maize (mealies) is the most successful, and millet (Kaffir corn) is also grown. In Basutoland and the east of the Orange Free State, where it is damper, wheat can be grown, and will probably be important in the future.

The only district where wheat and other European cereals are much cultivated at present is where there is winter rainfall, in the south of Cape Province. Wheat ought to be able to grow through the winter in order to give good crops, but this it cannot do when the winters are dry, as in most of South Africa. Vines are also largely grown on the south coast, and an export trade in peaches and plums has grown up.

As we have seen, many tropical fruits and crops are grown in the warm belt on the coast of Natal, but not in sufficient quantities to allow of sending them abroad. Coffee, sugar, tobacco, and other tropical crops are also grown in the Transvaal lowlands, and there are many market gardens to supply fruit and vegetables to the miners. Inland, in Natal, as the land rises to the edge of the plateau, it becomes drier and much colder: here

sheep are kept and maize and millet grown. Black wattle, which has been introduced from Australia like the eucalyptus, is also grown for the tannin in its bark, with which hides are made into leather.

162. Minerals. As in other dominions, it was the discovery of valuable minerals which first led to the opening up of South Africa by the British. The Dutch settlements and farms were scattered, and separated by many miles, but when diamonds were found at Kimberley in the middle of last century, and gold in the Witwatersrand Hills (in the Transvaal) some twenty years later, railways were quickly made, settlers hastened in, and mining towns were built, such as Johannesburg and Kimberley. Since that time the output of gold has steadily increased, and now over one-third of the gold in the world comes from South Africa. The most important gold-mining areas in the Transvaal after the Witwatersrand (or Rand as it is called for short) are Pilgrim's Rest and Barberton. Copper and lead have been worked in South-West Africa, tin in Swaziland, and mining is likely to be extended.

Diamonds are found in the country round Kimberley lying in the east of Cape Province, the west of Orange Free State, the south west of the Transvaal, and the former German territory of South-West Africa. A big mine has also been made near Pretoria in the Transvaal. Enormous open holes in the earth are made to reach the diamonds. The De Beers mine is the richest diamond mine in the world. Coal is found in the Transvaal, Orange Free State, and Natal, and tin in the Transvaal. Most of the copper comes from Namaqualand in the west.

163. Comparison of the Provinces, &c. You will see that the Transvaal is much the most important

mining country. Though there are diamond mines in the west of Orange Free State, most of it is pastoral country, where the Boers drive their flocks of cattle and sheep. Basutoland, to the east, has hardly any white inhabitants at all. Natal has tropical plantations near the coast, and fields of maize, &c., and pastures for sheep higher up. Cape Province is mostly poor pastoral country, except on the south and east coasts. Bechuanaland is semi-desert, except where wheat and millet are grown in the east, where the Vaal River and its tributaries provide water for irrigation.

164. Manufactures. There are not many big factories in South Africa. This is partly because there are not many white people to start them, and partly because there are not many big towns and they are a very long way apart, so that it is difficult to carry the materials for making things to them. Most of the manufactures are carried on in the towns on the coast.

165. Towns. Cape Town, the capital of South Africa and of Cape Province, is the nearest port to Europe and stands on the magnificent Table Bay, sheltered by Table Mountain. Kimberley, the diamond town, is also in Cape Province. The capital of the Transvaal is Pretoria, which is an old town and a farming centre; but Johannesburg, the gold-mining town, is the biggest and richest place in South Africa. Bloemfontein is the capital of the Orange Free State. Pietermaritzburg of Natal, and the tiny town of Mafeking of Bechuanaland. After the mining towns, the ports are the most important places in South Africa. Cape Town has a harbour famous as a port of call for ships sailing between Europe, Australia, and other lands by the 'Cape route', as it is called. Durban, in Natal, has a splendid harbour, and Port Elizabeth

and East London, in Cape Province, are busy ports. Simonstown is a naval base for the British fleet in South African waters.

166. Communications. There are five chief railway lines running inland from the ports of Cape Town, East London, Port Elizabeth, Durban, and Lourenço Marques (in Portuguese East Africa). These lines all have to climb the mountain barrier round the central plateau, and then they have to run long distances through thinly peopled and little developed country to reach the towns of the interior. For this reason they had to be built cheaply, and so they have mostly a narrow gauge (that is width between the rails) and only a single track.

167. Rhodesia is called after Cecil J. Rhodes, the great man who founded it and lies buried in the beautiful Matoppo Hills, near Bulawayo. Rhodesia forms part of the South African plateau, and lies from 3,000 to 5,000 feet above the sea. This is very important for the future of the country, because it is its height above the sea which makes its climate temperate and suitable for European settlers, even though the whole country lies in the tropical zone.

The plateau in Rhodesia is much broken up by ranges of hills; the highest are on the eastern border, and form a continuation of the Drakensberg Mountains of Natal.

168. Zambezi River. The Zambezi is much the most important of the Rhodesian rivers, and drains two-thirds of the country. It divides northern from southern Rhodesia. It is 1,700 miles long, but is only navigable for shallow draught steamers in certain parts, which are separated by rapids, so that it is of no great use for trade and communications. It is a fine and impressive river: at one point the whole stream, over a mile broad, falls sheer over a ledge into a chasm

nearly 400 feet below. These great falls are called the Victoria Falls. After the falls the tremendously deep torrent rushes through a narrow gorge for 40 miles. The Zambezi has several important tributaries, the chief being the Kafue, the Loangwa, and the Shire.

The rivers north of the Zambezi basin drain to the Congo basin in Central Africa, and the country south of the Zambezi is drained by the Sabi and the Limpopo and their tributaries; most of these southern rivers only have running water in them for half the year.

169. Climate and Vegetation. As in most of South Africa, almost all the rain falls in the summer months, and the east is wetter than the west. But no part of Rhodesia is as dry as the veld of the South African Union, so that we find it is covered everywhere with rich grasses, and beautiful flowers in the spring: trees and woods are much more common than on the high veld; their leaves are beautifully red and yellow when they first come out in the spring, not just before they fall as with us in England.

170. Animals. There are so few settlers in Rhodesia as yet that it is still a home for many big wild animals, though they have been driven away from parts of Southern Rhodesia by the farmers, and from the neighbourhood of the towns and railways. But farther afield elephant, hippopotamus, rhinoceros, buffalo, zebra, antelope, and ostrich may still be found, and the lion and leopard still prowl round the cattle and sheep folds. Only a few years ago, a goods train between Bulawayo and the Victoria Falls ran off the lines owing to a collision with an elephant. The rivers, even those which are only muddy pools in the dry season, are full of fish and crocodiles.

171. Minerals. Rhodesia is rich in minerals. A

beginning has been made in developing the deposits of coal, copper, and iron. It was gold, as in the Union territory, which first led men to push north into Rhodesia, but it has never been found in such great quantities as on the Rand.

172. Agriculture. But it is as a country for raising cattle and sheep that Rhodesia is specially suitable. There is more rain and richer soil and a warmer winter than in the South African Union. At present maize, tobacco, and fruit are the chief crops grown by Europeans. But other crops like wheat and cotton are being tried, and, no doubt, in times to come, Rhodesia will be a rich land of fields and pastures.

173. Population. At present in all North Rhodesia there are only 1,500 white people, and as it is much hotter here than in Southern Rhodesia, it is not so suitable for Europeans. It is still a wild country, inhabited mostly by black natives, with no railway but that running north from Victoria Falls through the centre, and no roads but narrow paths.

174. Southern Rhodesia: Population and communications. Southern Rhodesia is different. There are not very many white men, but they are rapidly increasing in number. No other country in the world has so great a length of railways in proportion to the white people living in it: there is a mile of railway to each twelve white people. It also has a number of main roads, though they are very muddy and difficult in the wet season.

Most of the white people are farmers or miners, not manufacturers, so there are few towns. There are only three places that have more than 1,000 white inhabitants, Salisbury (the capital), Bulawayo, and Umtali.

The natives of Southern Rhodesia are divided into

two chief tribes, the Mashona and the Matabele, and the names of the two chief divisions of the country, Mashonaland and Matabeleland, are taken from them. There are other tribes in Northern Rhodesia and they use many different languages. The natives are now peaceful and are allowed to live undisturbed under their own chiefs. They live largely by keeping cattle, and in Southern Rhodesia they grow maize, cotton, oats, and other crops. The tsetse fly makes it impossible to keep cattle in the valleys of Northern Rhodesia, and here the natives are more backward.

175. Nyasaland is a small strip of country lying east of Rhodesia, between it and Lake Nyasa, and south of the lake. This great lake, the third largest in Africa, is 360 miles long. A continuous chain of mountains and tablelands runs down the middle of Nyasaland, from north to south, and on the shores of the lake and the rivers are lowlands. On the heights it is much like Rhodesia in climate and vegetation, and so it is also very suitable for agriculture; but it is hot in the lowlands and here the land is thickly covered with forest trees, palms, tree-ferns, and reeds. It is not so healthy as Rhodesia, as malaria is common. Coffee and cotton are grown, and the natives keep many cattle; but at present there are only about 800 white people in the country, and a few hundred Indian traders, with about a million black natives. These natives are more advanced than many natives of tropical Africa. Like those in Rhodesia, they clear and work the ground, and the women gather the crops. Their chief food is grain, which is pounded into flour and eaten with fish, meat, white ants, or pepper. The men also work iron, make clothes, and plait grass into baskets or other objects: the women make clay pots.

Nyasaland is well watered, but most of the rivers are small. The valley of the largest, the Shire, which drains Lake Nyasa, is the chief way by which other countries are reached and trade carried on. There is a railway from the Zambezi, near where the Shire joins it, to Port Herald and Blantyre (the chief town) in the south part of Nyasaland. The line was built first from Port Herald to Blantyre, to avoid the falls and rapids by which the Shire descends from Lake Nyasa. It is in the Shire Highlands, which lie to the east of the river, that many of the settlers have their plantations. Their produce has to be taken down the Zambezi in barges to Chinde, on the coast of Portuguese East Africa. As Chinde has no harbour it has then to be carried 120 miles by sea in big boats called lighters to Beira, which is the nearest port where steamers call. A railway is planned to continue the present railway as far as Beira. There are good roads in Nyasaland on which produce is carried in ox-carts to the railway or to the little steamers which ply on Lake Nyasa.

Exercises

1. Work out (*a*) the different conditions of moisture, (*b*) the different types of vegetation, (*c*) the conditions favourable or unfavourable to agriculture, which would be met with on a journey from Cape Town to the Victoria Falls.

2. Account for the want of navigable rivers in British South Africa. Why are the valleys mostly of little use as lines of communication?

3. What are the chief mineral products of South Africa, and where are they found?

4. From a map work out which parts of South Africa and which important places have their easiest outlet to seaports in territory which is not British.

CHAPTER X

AUSTRALIA

176. The name Australasia is applied to the great area of sea and land which includes Australia, New Zealand, Tasmania, New Guinea, and a number of smaller islands. Sometimes all these islands are spoken of as a continent, though they do not form a single mass of land: this is because they are all joined by more or less shallow seas. East of Australia, and also of New Guinea, there are large stretches of very deep sea, but these are gulfs or depressions in the sea-bottom, which elsewhere, between Australia and the other islands, is not more than 6,000 feet deep. The crust of the earth has been folded into big puckers, running more or less north and south, and the islands are the tops of the folds. The Tonga Islands form the eastern boundary of Australasia, because on their east side is a long trough in the bottom of the sea; this is called the Tonga Deep, and is one of the deepest in the world, going nearly four miles down below the surface. West and south of Australia there is also very deep sea, but to the north Australasia is joined by shallow seas to the Malay Archipelago, and this is an important matter with regard to the plants and animals of Australia, as we shall see later (§ 186).

177. Australia is the largest island in Australasia and it is also spoken of by itself as the smallest of the continents: it is over three quarters the size of Europe, and has an area of 3,000,000 miles. It is more isolated than any other big mass of land in the world, except the land round the South Pole. It is very different from Asia, the continent nearest to it, because it is

a compact country, and has no very high mountains or much broken coast. It is largely high plateau land.

178. Physical Divisions. The north coast is broken by the Gulf of Carpentaria, and the south sweeps round in a wide curve to form the Great Australian Bight. On the east side of this bight are the two smaller Spencer's and St. Vincent's Gulfs. If a line is drawn from the Gulf of Carpentaria in the north to these two small gulfs in the south it passes over the lowest part of Australia, where the land is mostly less than 600 feet above sea-level, and only rises in one part to 1,000 feet. This we may call the Central Lowland of Australia. To the east is higher land, which extends all along the east coast and for some distance inland. These are the Eastern Highlands, and are continued in the island of Tasmania, south of Australia. To the west of the belt of lowlands is a plateau, all over 600 feet above sea-level. It is broken here and there by low ranges of mountains, and is fringed with a narrow belt of lowlands on the west coast and along the Great Australian Bight. This is called the Western Tableland. We have thus a very simple division of Australia into (1) eastern highlands, (2) central lowlands, (3) western tableland.

179. Political Divisions. Australia is a Commonwealth, divided into six states and two territories. All but one state, the island of Tasmania, and one territory, Papua, which is the British part of New Guinea (§ 205), are on the mainland. These are:

In the east,		New South Wales.
,,	,, north-east,	Queensland.
,,	,, south-east,	Victoria.
,,	,, south,	South Australia.
,,	,, west,	Western Australia.
,,	,, north,	the Northern Territory.

In the south east corner of New South Wales is the Federal Territory, which was created to contain the capital of the whole of Australia (the Federal capital, as it is called), Canberra.

The sixth state is the island of Tasmania.

The boundaries of the mainland states do not usually run along any physical division, such as the top of a mountain range, but simply follow lines of latitude and longitude (except part of the New South Wales frontier), so the division of Australia by states is different from the division into different sorts of country, of which we have already spoken. The three eastern states, New South Wales, Queensland, and Victoria, each include part of the eastern islands and part of the central lowlands. South Australia and the Northern Territory each include part of the central lowlands and part of the western tableland, and Western Australia includes the larger part of the western tableland.

180. Eastern Highlands. The eastern highlands are made up of a great number of ranges. In the north, in Cape York Peninsula, the Bellenden Ker and other hills rise over 3,000 feet close to the east coast, so that there is no room for the formation of plains and there are no long rivers on that side, but several fairly big rivers flow down the west side of the mountains to the Gulf of Carpentaria. Farther south, in Central Queensland, there are several bigger rivers flowing east, including the Burdekin and the Fitzroy, and here the highlands are mostly lower. But from Southern Queensland right through New South Wales to Tasmania the mountains are higher, and there are only important gaps in a few places, such as that made by the Hunter River behind Newcastle, and that at Goulburn. In Victoria are the highest mountains, the Australian Alps: Mount Kosci-

usko, near the frontier with New South Wales, is 7,340 feet high. In Tasmania the highest peaks are a little over 5,000 feet. None of these mountains, however, is high enough to be covered with snow all the year round. In the north of New South Wales are the New England and Liverpool highlands. Here the rivers flowing to the Pacific coast have cut deep, narrow gorges, with

Fig. 21. Gorge in the Blue Mountains, New South Wales

magnificent falls. On the other side of the Hunter Gap come the Blue Mountains, near Sydney, so called from their colour on the sky-line. As the plain round Sydney became more thickly peopled, explorers sought a way west over the Blue Mountains, but they found it very difficult, because the sides and heads of the valleys are shut in by precipices down which there are waterfalls. Such scenery is common in the south of New

South Wales, where the highlands are broad plateaux, cut by deep narrow gorges. Tasmania, into which the mountains continue, after being broken by the shallow Bass Strait, is very hilly and the coast is much cut up. The valleys of the two chief rivers, the Derwent and the Tamar, provide a natural route across the island.

181. Rivers of the Eastern Highlands. The rivers on the west side of the mountains are very different from those on the east. One town, Toowoomba, which stands on the Darling Downs, about the centre of the highlands, is just on the divide between the rivers, so that the water in the gutters in one street may be going to reach the Pacific Ocean in the Brisbane River in about 80 miles, whilst the water in the gutter in the next street will have to run about 1,400 miles before it gets to the sea on the south coast. Of course, the valleys of rivers flowing west have a much more gradual slope than those of the rivers flowing east. It is interesting to notice that the divide is being gradually pushed westward; the east-flowing rivers are cutting their valleys back into the hills more quickly, partly because they flow more quickly and so are more powerful, and partly because it rains much more on the east side of the mountains than on the west, and so there is more water in them than in the western rivers. They are always strong streams even in dry weather, and some are navigable for 50 miles or more for steamers which do not draw much water. We may learn some more curious things from the map of the rivers in the eastern highlands. In several places there are lakes right on the top of the divide: this is because the land is so flat, though it is high, that the rivers have been very easily dammed in past ages by a little rise of the ground, and have formed lakes. Then it is very unusual

to find rivers, like the Burdekin and the Fitzroy, which spread out, with their tributaries, over a big basin, and then run to the sea in gorges cut through a granite ridge of mountains. Also many of the tributaries run west—that is, away from the direction of the main rivers—before they join them. Both these curious facts are explained when we know that the ridge, now so close to the sea, was once a long way inland, when Australia stretched much farther to the east than it does now. Then it was the water-parting; the big rivers and their tributaries really did run west into the Condamine and the Warrego, and there were only short rivers to the east of the mountains. Then gradually these coastal rivers cut their way back through the mountains, and made the gorges through which the rivers, which had till then run to the west, began to flow. The sea covered the country to the east of the ridge and so the eastern highlands which we now see were made with the lakes on the tops of ranges and the curious arrangement of their rivers. The sinking under the sea of the east of Australia was accompanied by the making of big cracks and folds in the highlands, and it is this that makes them so rugged, so that communication between the east coast and the interior of Australia is always difficult, and it is almost impossible to build a railway along the coast itself. This coast is fringed for 1,200 miles by the Great Barrier Reef, built up of coral and studded with coral islands. It protects the sea between it and the mainland, so that it is also a protection to shipping.

182. Central Lowlands. The central lowlands may be divided into three basins: (1) in the north that of the Gulf of Carpentaria, (2) in the south the Murray-Darling basin, and (3) in the south-west the Lake Eyre

basin. There are quite low divides, not much over 1,000 ft. high at any point, between these basins, except in the southern part of the division between the Lake Eyre basin and the Murray Darling basin. Here the Flinders and Mount Lofty ranges rise boldly, some of the summits being over 3,000 ft. A great part of these central lowlands is arid country. The Murray-Darling basin is watered by the Murray, the biggest and most important of the Australian rivers, and its tributary the Darling. The Murray is fed by the snows on the Australian Alps, and it hardly ever stops running in dry seasons. This is remarkable, because most of the rivers dry up at one time of the year, and are of little or no use for navigation. The Murray and the Darling together are navigable for over 2,500 miles, but they and the other tributaries of the Murray vary much at different times of the year. After heavy floods the Darling may be a great sheet of water 100 miles wide, but after months of dry weather it may be a trickle of water between high red banks. A number of fairly big rivers, such as the Flinders, the Gilbert, and the Norman, run into the Gulf of Carpentaria from the eastern highlands, and water the northern part of the central lowlands, but in the Lake Eyre basin and in a great part of the lowlands there are no rivers running to the sea at all. In wet weather big streams run to Lake Eyre, and to other salt lakes, like Lake Torrens, which are joined to it in wet weather. Only the south part of Lake Eyre contains any water; the rest is a salty plain, lying below the level of the sea, into which the rivers sink away. During most of the year the country is too dry for bush and grass to grow well, so that it is not even fit for feeding cattle or sheep, unless water is got from wells. The stony plains, where no plants grow,

are called 'gibbers'. About 1,700 artesian wells have been made, some of them going over 2,000 ft. down into the earth.

183. The Western Tableland is much the largest of the three regions into which we have divided Australia: it covers more than half the whole island. It is a vast plateau of very old worn-down rocks, lying

Fig. 22. Dry Plains ('Gibbers') in the Central Lowlands

from 1,000 to 1,500 ft. above the sea. The tableland is very thinly peopled. The northern part, which is watered by several fine rivers, such as the Roper, the Victoria, and the Fitzroy, is hot and not very fertile; and all the middle part of the tableland, which is a quarter of the whole of Australia, has no rivers at all, and is arid, like the Lake Eyre basin. To the east it is not entirely barren, but has belts of fair pasture-land,

with stretches of stony land where only spiny and scrubby plants grow. Western Australia, however (that is, the western half of the tableland), contains real sandy desert, where hardly any vegetation is found but a plant called spinifex, which grows in large round bosses, all over prickles like needles. It is a horrid plant to walk through, and too big to walk over; but it is useful for making fires, and for holding the sand together. When it is in seed it makes good food for horses. It is not surprising that the tableland was the last part of Australia to be explored; no one was able to cross the central part till 1896, and even now there are only about 1,000 people living on it. There are several ranges rising above the surface of this plateau, the chief of which are the McDonnell Ranges in the centre, and the King Leopold Ranges in Western Australia. In the south-west corner of the continent there is an area of land where there is more rain and several rivers run into the Indian Ocean, the chief being the Murchison. Therefore more country in this part is fit for agriculture, and, as we should expect, this is the only large part of Western Australia where many people are settled.

184. Climate. The Tropic of Capricorn, the line which divides the temperate regions of the Southern Hemisphere from tropical parts, runs across Australia almost in the middle. Of course in so large a country, stretching far into the temperate zone on one side and into the tropical zone on the other, we shall find large differences of climate. We must remember that as Australia lies south of the Equator, the north of the country will be the hottest part, not the south as in European countries, and midsummer is in January, not in July. The hottest part of Australia is inland in the

northern and tropical part. Cape York Peninsula and Arnhem Land, which are farther north, are cooler, because of the water which surrounds them on three sides. Near the middle of the continent there are sometimes as many as 150 days on end when the thermometer marks over 90° F. It seldom goes as high as 90° in England. But taking Australia as a whole the temperature is lower than in other big countries in the same latitude, and does not vary so much at different times.

The rainfall is of tremendous importance to some of the chief occupations of man in Australia. As we have seen, the central plateau has hardly any rain, and it is only round the north, east, and south-east coasts, and in the south-west corner that rain is really plentiful. Next the dry region in the middle is a belt which gets rather more rain. It is in the part of this belt which lies to the south of Australia that wheat is grown. In the north part of the belt it is too hot for wheat. Then outside this belt comes another and wetter belt, which includes Tasmania, and it is mostly in this belt that sheep and cattle are kept. There are more cattle north of the Tropic than sheep, because they can bear greater heat than the sheep with their thick fleeces. In Western Australia the dry region reaches to the coast, so that on that side the belts are broken. You see now how much the agriculture and pasture, on which men in Australia largely depend for a living, are affected by the rainfall and the temperature. The greater part of the rain falls in winter in the south of Australia and in summer in the north. This is of great importance, as the possibility of growing wheat, for instance, in any place depends even more upon the time of year at which the rain falls than upon its amount. Wheat needs cool, moist weather

when it is sown and while the plants are young; dry warm weather when it is harvested (see § 190).

185. Vegetation. The vegetation of the country naturally corresponds with the temperature and the rainfall belts of which we have been reading, all the more so because there is so little very high land to affect it. In the middle is an enormous area of country where nothing grows but small dry trees and shrubs, such as 'salt bush', which, however, makes very good pasture (§§ 182, 183). Parts are stony or sandy tracts where nothing grows at all, or at most only spinifex (§ 183), porcupine grass, and other spiny plants of no use for pasture. Here and there are holes or water-courses, which only contain water after the rains, but are marked by a belt of trees. Surrounding this dry country is a belt of beautiful pasture land, covered with fine grass several feet high in a good year. There are not many trees, though the creeks and rivers are fringed with them. As we go farther from the arid centre, and come into the rainier parts, the trees become bigger and grow closer together, till we reach the real forests, or 'bush'. These forests are more open than European woods, and there is grass underneath the trees, and not much undergrowth. It is only where the rainfall is heaviest, on the north-east coast, that we find thick tropical forests, with the trees all knotted together with vines and creepers, so that it is difficult to get through them. Naturally there are different sorts of trees in the hot north and the cooler south. In the south the woods are almost entirely composed of eucalyptus, or gum trees, of which there are many sorts. They have small leathery leaves, which droop edgeways in the hot weather so that the sun does not shine full on them. They are hardy trees and do well in a dry climate, but where

there is more rain they grow to a great height, as in Gippsland in Victoria, and in the south-west of Western Australia, and splendid piles and wood-blocks for paving the streets are made from them. Eucalyptus oil, which we all know, comes from these trees. They and the other sorts which grow among them, such as the acacias or wattles, are all evergreen and of a dark greyish-green colour, so that the Australian bush, as it is called, beautiful as it is, is rather monotonous. Many of them, however, have pretty flowers: we often see the flower of the wattle (the mimosa as we call it) in England.

On the north and north-east coasts the forests are different, for, although they contain eucalyptus and acacias, there is an abundance of trees and plants such as are found in New Guinea and other tropical countries. There are bananas, rhododendrons, palms, and orchids. Most of the Australian mountains are not high enough to cause any great difference between the vegetation at the top and at the bottom, but on the highest peaks of the Australian Alps, and of the Tasmanian mountains, there is no forest, only little trees and Alpine plants.

The hard wood of some of the eucalyptus, such as the karri and jarrah trees of the south-west forests and the iron-barks and red gum trees of the south-east, is very valuable. There are also many beautiful ornamental woods in the tropical forests, such as rosewood, tulip-wood, and sandal-wood. A great deal of timber has been wasted in Australia because trees have had to be cut down and cleared to make pastures and fields in parts of the country where there are no means of using the timber or of sending it away. In the wheat belt (§ 190) almost all the trees have been killed, and the

country is still somewhat ugly, as the farmers have not, as a rule, been long enough on the land to make beautiful gardens or build fine houses.

186. Animals. The animals of Australia and of the eastern islands in the Malay Archipelago are unlike the animals of any other part of the world, and different from those in the western islands of the Malay Archipelago, though there are only narrow seas between them. This shows that Australia cannot have been joined by land to Asia, or the islands off Asia, for countless ages: because if it had been joined the animals would have travelled across from Asia through the Malay Archipelago to Australia, and there would not have been such great differences in the animals we find in the two continents. For instance, in Australia there are none of the deer and squirrels and wild cats and monkeys which are so common in the Malay Archipelago, and none of the bigger animals, like lions, tigers, rhinoceros, or elephants. On the other hand, there are the curious animals which are called marsupials—that is, animals whose young are very small when they are born and are carried in a sort of pouch of skin by their mother till they are big. The kangaroos (the best-known marsupials) and the wallabies live on the grass plains; and there are the opossums and native bears, which live in trees, the flying phalangers, something like squirrels, the bandicoots, something like rats, and several others which all carry their young in pouches. There is another curious class of animals only found in Australia and that is the animals which lay eggs like birds. One, the platypus, has webbed feet, fur like an otter, and a bill like a duck; and it lives in streams and lakes, making burrows in the banks, where the female lays an egg and sits on it. The other is a sort of porcupine,

which eats ants and other insects; the female keeps its egg in a pouch. Rabbits were introduced into Australia from Europe, and at one time they threatened to overrun the country and eat up all the grass. Many thousands of miles of fencing, which they could not get through, had to be put up to keep them off the pastures. Of late years it has been discovered how to keep meat good by freezing it, so that it can be sent to Europe for food. Since then the trade in frozen rabbits has compensated a little for the damage they do to the pastures and crops.

The birds of Australia are also different from those found elsewhere, and some are very interesting. The honeysuckers, of many sorts, are the commonest: their tongue ends in a little brush, with which they collect honey from the flowers. The mound-makers heap rubbish over their eggs to keep them warm and hatch them, instead of sitting on them.

187. Population. The population of Australia is five millions. Australia has been settled by white men for over a century, and, as we should expect, they have gone to live where the climate and the soil are most suitable for crops, or where there are useful minerals to be found. There are two big areas of Australia where there are practically no more settlers now than there were when the continent was first entered by white men. These are the central area, which is dry and almost rainless; and the whole of the tropical country to the north, excepting the east of Queensland. There are three bits of this country which are more thickly peopled, and the reason for this will be explained later. A line drawn from Adelaide to Brisbane cuts off a section of Australia, the south-east corner, in which live over three-quarters of all the inhabitants. The five

capital towns of Sydney (New South Wales), Melbourne (Victoria), Adelaide (South Australia), Brisbane (Queensland), and Hobart (Tasmania) are all in this corner, and in them live more than one-third of all the people of Australia. There is only one capital city, Perth (Western Australia), outside this area. The country round these five towns is also thickly peopled. The reason why such a large proportion of Australians live in this part is that it is the only part of the country, excepting the south-west of Western Australia, where the rainfall and the temperature are like those of the original homes of the white people in Europe. It is natural that settlers should choose to go to the part most like their own homes, particularly as Australia does not allow coloured workers from hot countries to be brought in to labour, so that all the work in the fields and mines is done by white men.

In the south east of Australia, in addition to a suitable climate, there are good harbours and plenty of land suitable for agriculture; there are timber and minerals, including coal, so that manfactures can be developed. There are also many white men in the south-west corner of Western Australia, where conditions are much like those in the south-east. The reason why there are two areas with a comparatively large number of settlers in the dry region (round Kalgoorlie in Western Australia and round Broken Hill in New South Wales) is because rich deposits of minerals have been discovered in these two places, so that men have found it worth while to go and live there. The other places where minerals are worked are within the more thickly peopled country. As we go north into Queensland from the thickly peopled parts of Victoria and New South Wales in the south east the people on the coast become fewer: this is

because here we are coming to the tropical country, where the climate is not so suitable for white men. Most of the Chinese, who are accustomed to a hotter climate, live here as market-gardeners or miners. Wherever white men have settled, in the south-west and in the south-east, and in the north of Queensland, they have pushed inland to cultivate grass country, so far as the rainfall allows, or to pasture sheep and cattle.

188. About 96 out of every hundred people who live in Australia are British. Only about 45,000 are Asiatics, mostly Chinese, and there are said to be about 100,000 Australian natives, or aborigines. We cannot tell exactly how many natives there are, as some are known to live in unexplored country, but they decrease very quickly in numbers when they meet with white men, because they catch diseases from them. These natives are ugly black people; they live a wild life, not cultivating the ground or building any proper huts or houses. They hardly ever come to the towns, and they do not take any part in the industries of the white people. Many of the Australian place-names are taken from their languages; this accounts for many names which look strange to us, such as Wooloomooloo, Moolyella, &c.

189. Sheep and Cattle. The chief products of Australia are those of her flocks of sheep and herds of cattle, her wheat-fields, her fruit-trees, and her mines; wool is the most important of all. We have already seen that the sheep and cattle live mostly in the hills and lowlands to the east, where there is more rainfall, and consequently more grass. The sheep which yield the best wool, the merino, flourish best on the drier plains inland, and the sheep which provide the best mutton live more on the cooler and wetter coast-land.

About half the total number of sheep are in New South Wales. The best cattle for beef are raised in the hot north, where sheep do not flourish, in northern Queensland, the Northern Territory, and the north-west of Western Australia; but the best cattle for giving milk and butter live in the damper climate in Victoria and New South Wales, because they require more water.

190. Wheat grows best in the south-east, particularly in South Australia, and the south-west, where the rainfall is small but falls at the right season (April to October) to swell the growing crops. Farther north, where there is as much rain, it is not profitable to grow wheat, because the rain comes at the wrong time of year, in the summer (§ 184). Also the hotter the sun is the more water the wheat requires. The lands on which sheep and cattle are kept extend farther inland towards the arid country than the wheat-fields: this is because grass and shrubs on which the animals can feed will grow in a drier climate than wheat will. They can be watered from the artesian wells which have been sunk (§ 182). The water in these wells is usually warm and often so full of mineral salts that it cannot be used for watering crops. But cattle and sheep can drink it: and indeed in many parts of Australia, particularly in the central lowlands, animals could not be kept at all, or driven from place to place, if it were not for these wells. The men, 'squatters' as they are called, who own enormous areas of land on which the sheep and cattle run wild, are being slowly displaced and pushed northwards or inland by the farmers who grow crops and keep cows. As we go north from the wheat regions, into Queensland, tropical crops begin to take its place, and sugar and tropical fruits are the chief products of the Queensland coast lands. But the north of Australia,

including parts of Northern Territory, Queensland, and Western Australia, has as yet been very little developed, although there is much rich soil, with abundant sun and rain. This is because the climate makes it a difficult country for white men to work in, and, as we have seen, the Australians object to coloured workers. No doubt when there are more people in Australia this northern area will also be developed, and tropical crops will be grown. At present cattle are kept, and there is a pearl fishery, in the Northern Territory.

191. Fruit. More people live by growing fruit in Australia every year, and a beginning of planting orchards has been made wherever farming is carried on. The trade in fruit is growing because cold storage now makes it possible to send it to Europe; and as Australian fruit ripens between December and February, in the Australian summer, it gets to England or Canada and the northern United States when these countries have no fruit of their own, and so is in great demand. Fruit is the product for which Tasmania is most famous. At present the distance is too great for soft fruit like peaches to be sent, but these are dried, tinned, or made into jam, and so are profitably exported. Grapes are grown in many parts, and wine is made in all the southern states.

192. Irrigation. Large stretches of land in the basin of the Murray River are watered by collecting the water from the rivers in reservoirs in times of flood and then letting it out in the dry season. It is hoped that larger parts of the plains of Australia will be irrigated in this way in the future, and this will make it possible to raise big crops on land which is now too dry to be cultivated.

193. Minerals. Gold is the most important mineral

found in Australia. When it was first discovered a great number of people hurried into the country, and helped to make known its possible riches, not only in gold-mining, but in other directions. They found other minerals, and started cultivating and pasturing flocks on new stretches of country. The amount of gold produced in Australia is not quite so large as it used to be, but there are still great parts of the country about which little is known, and it is possible that fresh discoveries of gold may be made. At and near Kalgoorlie in Western Australia are some of the richest mines in the world; they have been developed in spite of the dryness of the country. A railway has been built to them, and a line of pipes over 300 miles long brings water to them from near the coast, where the Helena River has been dammed to make a reservoir. Gold is also mined in the east, in New South Wales, Queensland, Victoria, and Tasmania.

There are rich deposits of all sorts of minerals known now, but hardly worked at all. Thus it does not pay yet to work much iron in Australia, but when manufactures increase iron will become important. In the same way with coal, four-fifths of the total is raised in New South Wales, because this is the part where the mineral riches of the country have been best explored. The coalfields here are the richest in the Southern Hemisphere. Coal is also mined in all the other states except South Australia.

New South Wales is particularly rich in minerals, for silver, zinc, copper, and tin are found, as well as the minerals already mentioned. The Broken Hill mining centre, far out in the dry country, is famous for its silver and zinc. Copper, silver, and tin are also found in plenty in other parts of Australia—in Queensland and Tasmania and elsewhere. We see now what great

possibilities exist in Australia for obtaining valuable minerals.

194. Manufactures. Manufacturing industries have not developed in Australia very much as yet, which is not surprising when we think that it is not much over a century since the first settlers arrived. Most of the manufactures carried on are, as we should expect, in the south-east. Ships which leave Australia full of her wheat and wool and other products come back bringing manufactured goods from greater manufacturing countries.

195. Communications. Before gold was discovered in Australia, about 1850, no quicker means of communication was needed between the different farms and the coast than was provided by the fine teams of horses and bullocks, which drew big coaches. Even after there were many more people and more produce to be carried about the country, railways were only built slowly. They have been constructed by the governments of the different states, and so there is not the same gauge on all the railways. The states like Queensland and Western Australia, where there were great stretches of country with settlements far apart, could not afford to build such expensive railways as the states where there were more people and towns and villages closer together, like New South Wales and Victoria. A narrow-gauge railway is cheaper and easier to build in many ways than a broad-gauge, so Queensland and Western Australia have narrow-gauge lines and Victoria and New South Wales lines of wider gauge. The result is that whenever passengers or goods get to the frontier of one of the states they have to change into another train, because engines and carriages built, say, for a 3 ft. 6 in. line cannot run on one of 4 ft. $8\frac{1}{2}$ in. A line has been opened joining the Western Australia

railways from Perth with those of South Australia, Victoria, New South Wales, and Queensland. So now it is possible to travel between all the state capitals by train; before, to get from Western Australia to South Australia meant a sea journey of 1,350 miles from the port of Fremantle to the port of Adelaide. Victoria is the state best served with railways, but New South Wales has several important lines. In Victoria, New South Wales, Western Australia, and South Australia, the railways mostly converge on the most important ports, which are Melbourne and Geelong (Victoria), Sydney and Newcastle (New South Wales), Port Adelaide and Port Pirie (South Australia), and Fremantle and Albany (Western Australia). But in Queensland the line of rugged mountains along the coast makes it difficult to build lines except through the gaps, so that here four separate lines run from the interior through the mountains to the coast and the nearest ports. The sea journey from port to port, protected by the Great Barrier Reef (§ 181), is easy. The chief of these Queensland ports are Mackay, Brisbane, Rockhampton, and Townsville. But the larger ports of Victoria and New South Wales have a much bigger trade. There are as yet no long railways in the Northern Territory, though there is a short line from Darwin, the capital, inland to Pine Creek, which opens up some gold and tin mines. To reach the north of Australia from the south means a long journey by sea, but it is intended to build a railway.

Exercises

1. Mark on maps, and compare (*a*) the physical divisions, (*b*) the climatic divisions, (*c*) the chief vegetation divisions

of Australia, and also those parts where wheat cultivation, sheep farming, and cattle farming are most important.

2. What are the chief mineral products of Australia, and where are they found? Note especially any mineral products which are so rich that they are worth working although the natural conditions make it difficult for people to live where they are found.

3. In what parts of Australia do most people live, and why?

4. What are artesian wells, where are they made, and what is their use?

5. Contrast and account for the relation of railways and seaports in (*a*) Queensland, and (*b*) New South Wales and Victoria.

CHAPTER XI

NEW ZEALAND

196. New Zealand consists of two big islands, North Island and South Island, a smaller one (south of South Island) called Stewart Island, and a number of little islands lying to the south, east, and north—Auckland, Chatham, Campbell, Kermadec, Cook Islands, and others. North and South Islands are only separated by a narrow strait, Cook Strait, 20 miles across at the narrowest point. Together they are nearly the same size as Great Britain.

197. Physical Features. Both these islands are mountainous, and there is not much flat land in them. There is one chain of mountains running from East Cape in North Island right through South Island to Stewart Island, and broken by Cook and Foveaux Straits: the northern horn of North Island is rather hilly than mountainous. The main range of the mountains in South Island, which are higher than those in North

Island, are called the Southern Alps: this is a good name, because many of the peaks are high enough to be covered with perpetual snow, and with their glaciers, long lakes in the valleys, rushing streams and dark forests, they remind us very much of the Swiss or Italian Alps. On the south-west they sink steeply to

Fig. 23. Lake Manapouri in the Southern Alps of New Zealand

the sea, which enters their deep valleys, and fiords, like those of Norway and British Columbia (§ 22), are seen. Inland there are several ranges side by side, with valleys between. Those on the east, where the climate is drier, are often almost bare, but on the west the slopes are covered with trees and grass. These grassy slopes are used as pasture for sheep, but the valleys are not cultivated as in many mountainous countries.

Many of the mountains in the south-west and in the Tasman Range and to the north have never been visited except by a few explorers. In North Island the peaks are not as a rule high enough to be always covered with snow, and here and there are volcanoes, isolated peaks, most of which are extinct, though some still send out clouds of smoke and dust. The most impressive is Mount Egmont (8,000 ft.), which rises alone, thrust out in the sea, to the west: it is now extinct. To the north and east of the volcanoes is country with hot springs and geysers which throw up columns of boiling water. Lake Taupo, in the middle of North Island, is the largest of many lakes. The scenery, particularly in South Island, is very beautiful.

You will see that the rivers in the long, narrow islands, with the mountains running down the centre, must be short and rapid. Even when they might be useful for navigation, this is prevented by the bars of sand which are formed at their mouths. They are rather less steep and rapid in North Island, because here the mountains are lower, and do not fill up so much of the island. These rivers, however, provide plenty of water for agriculture and pasture land.

In most parts of the islands there is a strip of hilly, grassy country between the mountains and the coast, and in the northern horn of North Island, which is called the Downs: it is generally too steep and broken to cultivate, but it makes splendid pastures for sheep.

The plains are few and small, but they are the most important part of the country for agriculture. The biggest are the Canterbury Plains, in the east of South Island: most parts of them are very fertile.

The coasts of New Zealand run mostly south-west and

north-east, and for the most part have few harbours and little shelter for ships. There is a continual current, and a swell from the ocean, coming from the south-west: this causes quantities of sand and gravel, torn from the coast, to drift and pile up in all the inlets and against all the promontories, often spoiling good harbours.

The best harbours are in Cook Strait and in the north of North Island. Here are drowned valleys which make deep, secure inlets; and here the coast does not run south-west and north-east, so that the current and swell do not bring drift along the shore. There are other good harbours, mostly on the east coasts. The seas round the islands are often very stormy.

198. Climate. New Zealand is often spoken of as the Antipodes because it occupies something like the same position in the southern hemisphere as Britain does in the northern. It is really about as far from the Equator as Italy is. Since no part of it is far from the sea the climate is temperate, and the height at which much of the country lies makes it cool for the latitude in which it is.

Much of the highest land is in the west of the islands, right in the track of the constant strong westerly winds which blow in winter, so that large quantities of rain fall on the west side of the islands, while the east side is much drier. The west of South Island gets about twice as much rain as the wettest part of Australia. North Island is not quite so much affected by the west winds as South Island, and so is not quite so wet, but the rainfall is more equally distributed, and the east coast is not as dry as it is in South Island.

South Island is about as hot in summer as the British

Isles, but it is not so cold in winter, so its climate is splendid for British settlers. North Island has a somewhat hotter summer than South Island.

199. Vegetation. About a quarter of New Zealand is covered with evergreen forest, but eucalyptus is not so common as in Australia. The best-known timber tree is the kauri pine. As we should expect, when we remember the heavy rainfall, the trees are laced together with creepers, and there are many tall ferns. Some of the native grass, which grows on the upper slopes and on the drier plains, is good for pasture, but most of it has been burnt off, and different sorts sown, or the land ploughed up. There is one valuable wild plant, the New Zealand flax. All over North Island azaleas and camellias flower out of doors, and olive, orange, lemon and fig trees grow as they do in Italy. In South Island, where the summer is not so warm, English fruits such as apples and peaches are grown.

200. Population. There are rather more than a million white people in New Zealand, and they almost all live in the lowlands in the east of South Island, and in the south-west and north of North Island, where is the best agricultural and pastoral land.

There are also about 50,000 Maoris, the natives whom the first explorers found living in the islands. They are a much finer, better-looking, and more intelligent people than the Australian natives, but they suffered in the same way (§ 188) when they first met white men. They are now increasing in numbers again, and some of them are well educated and are clever farmers.

There are only four towns of any size. These are Auckland, in North Island, on a magnificent harbour: Wellington the capital, also in North Island, on Cook Strait; Christchurch, on the Canterbury Plains, in

South Island; and Dunedin, in the south east of South Island.

201. Minerals. Coal and gold are the only two minerals that have been much worked, but there are many others which have not, so far, been worth mining.

202. Sheep. It was the discovery of gold, as in Australia, which first brought numbers of settlers to New Zealand, but it was the discovery how to take frozen meat to Europe and America which helped her prosperity most. Sheep have always been the chief wealth of New Zealand, but formerly only the wool could be exported. Now the mutton is sent as well, and we know it in the shops as 'Canterbury lamb', called after the plains where many of the sheep live. Cattle are also kept, and butter and cheese are exported. These industries have become so important that less wheat is grown than formerly. One great advantage for New Zealand sheep and cattle farmers is that the coast lands are never covered with snow, so that the animals can be kept out of doors all winter.

203. Manufactures. New Zealand is a young country, and has not been settled by white men for a hundred years yet. So we shall not expect to find many great towns or manufacturing centres. In the future, when there are more people, manufactures will become very important, for New Zealand has plenty of coal, and many lakes and swift rivers to provide power for electricity.

204. Communications. New Zealand rivers, as we have seen, are of little use for communication between one part of the country and another, excepting the Kaipara, in North Island, up which large vessels can go for some distance. But there are good roads and

railways in both islands, and a number of good harbours. All the towns are on the coast, so that much of the traffic between them is carried on by sea. The railways, which have a narrow gauge, mostly serve the areas where most people live, that is to say the east of South Island and the north and south of North Island. Settlements in the forest country are still few and lonely.

EXERCISES

1. Draw a map of New Zealand showing the agricultural and pastoral lands and chief ports.
2. Compare the climate of New Zealand and Britain.
3. What different kinds of mountain scenery are found in New Zealand? Can you compare them with any other parts of the empire?

CHAPTER XII

THE EMPIRE IN THE PACIFIC

205. British New Guinea or Papua. British New Guinea is part of the large island of New Guinea, or Papua, which lies to the north of Australia. It is separated from the northern point of Australia, Cape York, by Torres Strait (100 miles wide). The British territory in the east of the island is bordered by Dutch New Guinea to the west. The territory belongs to the Australian Commonwealth, and includes the former German New Guinea or Kaiser Wilhelm's Land. Through the middle of the island runs a range of mountains, the highest in Australasia, many of the peaks being over 11,000 feet high, and Mount Albert Edward, the highest,

13,250 feet. These mountains are bordered by low, flat coastal plains, most extensive in the south-west, where the great Fly River flows to the Gulf of Papua. Farther east is the delta country of the Purari and Kikori Rivers, a desolate land covered with mangroves and palms and cut up by many streams.

There is plenty of rain in most of the country and the mountains are covered with forest. But the coast near Port Moresby is quite dry during the season of the south-east trade winds. It is cooler in the mountains than on the coast, but it is very damp and cloudy, so that it is not attractive to settlers.

Much of the country is unexplored, and it is only round Port Moresby and elsewhere on the coast, as at Madang in the former German territory, that there are any settlers at all. There are less than 1,500 white people in the country. They were attracted at first by the discovery of gold; but the rough country, the thick vegetation, and the difficulty of getting provisions or other necessary things in a land with no roads, make Papua a hard country for the gold-miner. Most gold is now got from Woodlark Island, to the east. Since 1906 men have begun to grow coco nuts and rubber, and oil has been found. The difficulty on the plantations is to get labourers, since the natives of Papua are thinly scattered over the country.

These natives are of two sorts: Melanesians, like those we shall find (§ 211) in the Pacific Islands, and Papuans, who are very dark people. Before the white men came, the different tribes were continually at war one with another, and many of them are still warlike, and are cannibals.

206. Bismarck Archipelago. Australia also controls these islands to the east of New Guinea, which

were German possessions. The largest of them, New Britain, is a quarter as large again as Wales.

They are mostly mountainous, and, as in New Guinea, little is known about the interior of them. The inhabitants, too, are like those of New Guinea, often hostile to white men, and some still cannibals. The coco-nut palm is the most important tree, and copra (§ 209) is the chief article of trade. The capital is Rabaul, on Simpson Harbour in New Britain. Other former German islands, now in British occupation, are the northern Solomon islands, and Nauru, far to the north-east, where phosphates are worked.

207. The Pacific Ocean, east of Australia, contains a large number of little islands, many of which belong to Great Britain. The chief British groups are the Fiji Islands, the Solomon Islands, the Gilbert Islands, the Tonga Islands, and the Ellice Islands. A part of Samoa, formerly German, and also the Cook Islands and other groups, are administered by New Zealand. The New Hebrides are governed by France and England jointly.

These are either flat islands made of coral, or else high ones, when the peak of a volcano sticks up out of the sea. Some of the smaller coral islands are rings of coral surrounding a calm lake or lagoon: these are called atolls. All are extraordinarily beautiful. The volcanic islands are covered with trees: vines trail from the leafy roof, and underneath grow tree-ferns and feathery bamboos. Sparkling mountain streams cascade down from the peaks, and, looking down, we get a glimpse of the blue ocean and the line of the white foam breaking on the coral reef which surrounds the island. In the coral islands there is no running water, for it is soaked up by the porous rock, and collects

underground. These islands are thickly covered with all sorts of vegetation, with groves of coco-nut; and palms and bread-fruit trees shade the grassy roads and paths leading to the little native villages.

208. The islands have plenty of rain, especially in the summer, but it falls in great quantities at once, so that there are many fine days. Sometimes there are tremendous storms or cyclones, which strip the trees, blow down the houses, and drive the ships ashore; but on the whole the islands, which lie in the path of the south-east trade wind, have a pleasant and healthy climate. Those farther to the west are hotter and damper.

209. Among the tropical trees and plants which cover all the islands are many which are useful to man, particularly the timber trees, the coco-nut palm, and the bread fruit tree. The coco-nut is used for all sorts of purposes by the natives, as well as providing food and drink, and its kernel, dried in the sun, is exported as copra. The oil from copra is used for soap-making. Some of the islands, besides Nauru, yield phosphates, which are formed from birds' guano and are useful as manure.

210. There are no native animals, except rats and bats, but in many islands cats, pigs, cattle, and fowls, which have been brought by men, run wild and breed in the woods. In the seas and rivers are quantities of fishes, turtles, crabs, shrimps, &c., and many of the native tribes live entirely on the fish they catch with their nets, spears, and traps.

211. The natives are divided into two great races, the Polynesians and the Melanesians. The Polynesians, who live in the islands east of Fiji, are a tall, good looking, light brown people, with wavy hair—always

Fig. 24.—Natives Fishing, Ghoicho, Fiji.

polite and gay. The Melanesians, who live in the islands west of Fiji, are darker and shorter, with frizzy hair, and are more energetic and hard-working than the Polynesians. The natives in many islands still live much the same simple life as before white men arrived — governed by their own chiefs, eating vegetables and fruit, living in grass huts, and wearing only a loin cloth ; but in some parts they are taking to wearing European clothes and eating things like tinned salmon and biscuits.

212. The natives dislike hard work, so that East Indian coolies have been brought in to work on the sugar plantations in Fiji. Bananas and pine-apples are also grown here for export. But in the other islands very little agriculture is carried on as yet by Europeans, because every native has his own little piece of land, in which he grows food for himself and his family, and naturally does not want to go and work on a plantation for a white man. There are about 4,800 white people in Fiji, but of these about 3,500 live in the two towns (the only ones in the British islands) of Suva and Levuka. There are only a few hundred whites in the other islands.

213. Communications and Harbours. In Fiji there are light railways to carry sugar-cane to the mills, and there are roads wide enough for horses and carts in Tongatabu (one of the Tonga group), but elsewhere most of the transport is in boats, which can go safely in the quiet water inside the coral reefs which surround the islands. Where the rivers run into the sea, there are breaks in the reefs, because the tiny animals which build up the coral cannot live where there is any fresh water mixed with the salt. Vessels can pass through these breaks to the safe anchorages inside. The port of Suva in Fiji is important as a calling place for ships sailing between Australia and North America, and some

of the other islands have natural harbours which might become important as trade-routes in the Pacific are extended.

Exercises

1. There are two different types among the small islands of the Pacific. What are they? Compare them.
2. What are the chief products of the Pacific islands?
3. Collect all the reasons you can think of why the islands are important to the empire.

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